Five-Year Review Report

First Five-Year Review Report
for
Midvale Slag Superfund Site
Midvale, Salt Lake County, Utah

CERCLIS ID: UTD081834277

Prepared by:

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Date: 10/20/03

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Acronyms

ACL	Alternate Concentration Limit
ARARs	Applicable or Relevant and Appropriate Requirements
BRA	Baseline Risk Assessment
BSHW	Utah Bureau of Solid and Hazardous Waste
CDM	CDM Federal Programs Corporation
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
COC	Contaminants of Concern
CSF	Cancer Slope Factor
EE/CA	Engineering Evaluation/Cost Analyses
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FS	Feasibility Study
HHRA	Human Health Risk Assessment
IC	Institutional Control
IRIS	Integrated Risk Information System
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MSW	Mixed Smelter Waste
NCEA	National Center for Environmental Assessment
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NE	Not Established
NPL	National Priorities List
O&M	Operations and Maintenance
OU1	Operable Unit 1
OU2	Operable Unit 2
PCE	Tetrachloroethene
RA	Remedial Action
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RfD	Reference Dose
RI	Remedial Investigation
ROD	Record of Decision
Site	Midvale Slag Superfund Site
SVOC	Semivolatile Organic Compound
UAC	Utah Annotated Code
UDEQ	Utah Department of Environmental Quality
UDOH	Utah Department of Health
USBR	United States Department of Interior Bureau of Reclamation
VMC	Valley Materials Corporation
VOCs	Volatile Organic Compounds

WE	Winchester Estates
WENW	Winchester Estates Northwest
WESE	Winchester Estates Southeast
WWTP	Wastewater Treatment Plant
mg/kg	Milligrams Per Kilogram
µg/L	Micrograms Per Liter

Executive Summary

The U. S. Environmental Protection Agency (EPA) Region 8 has conducted a five-year review of the remedial actions (RAs) implemented to date at the Midvale Slag Superfund Site (Site) in Midvale, Salt Lake County, Utah. This is the first five-year review for the Site. The purpose of this five-year review is to determine whether the remedy at the Site is protective of human health and the environment. This is a statutory review, so the trigger action for this review is initiation of RAs at Operable Unit 1 (OU1) in May 1996. Since hazardous substances, pollutants, or contaminants remain at OU1 above levels that allow for unrestricted use and unlimited exposure, a five-year review is required.

The RAs stipulated in the Record of Decision (ROD) for OU1 are complete except for the implementation of the institutional controls. In addition, groundwater monitoring has not been conducted as required by the ROD. The ROD for Operable Unit 2 (OU2) was signed in October 2002. The remedial design (RD) for OU2 is ongoing, and the RA has not been initiated. As such, this first five-year review for the Site focuses on OU1. OU2 will be included in more detail in subsequent five-year reviews after the RA for that part of the Site has been completed.

The remedy described by the OU1 ROD involved excavating surface soils at 14 residential yards on the Winchester Estates residential development (Parcel WENW), placing a compacted permeable soil cover over the exposed native soils in the undeveloped southeast portion of Winchester Estates (Parcel WESE), implementing deed restrictions or other institutional controls on the remaining parcels of OU1 to prohibit residential land use unless additional remediation to residential soil cleanup levels occurs, and semi-annual groundwater monitoring. The remedy was modified by an Explanation of Significant Differences (ESD) to excavate contaminated soil in Parcel WESE instead of placing a soil cover on the area. This modification eliminated institutional controls for Parcel WESE since contaminated soil was no longer left in place.

The remedial actions required by the decision documents for OU1 have been completed except for the implementation of institutional controls (ICs). In general, the remedy as implemented in OU1 is protective in the short-term, but requires follow-up actions to be taken to be protective in the long-term. The remedy for OU2 is expected to be protective upon completion. Detailed protectiveness statements for each portion of the Site, including the Winchester Estates Mobile Home Park in the northern portion of OU1, the undeveloped parcels in the southern portion of OU1, and OU2, are as follows:

- The remedy at OU1 as implemented in the Winchester Estates Mobile Home Park, the portion of the Site currently inhabited, is functioning as intended by the decision documents and remains protective.

- The remedy has not been fully implemented in the undeveloped southern portion of OU1, as the ICs have not been put in place and the groundwater monitoring stipulated in the ROD has not been conducted. The remedy as implemented in this portion of OU1 is

protective of human health and the environment in the short-term because there are no receptors other than trespassers, and the remedy is protective under both the commercial/industrial and trespasser exposure scenarios. Furthermore, nearby residences and businesses are connected to the municipal water supply. In addition to these issues, other issues involving proposed land uses, changes in toxicity data, and additional soils and groundwater contamination identified in sampling conducted in 2001 and 2002 were identified during this five-year review. In order for the remedy to be protective in the long-term, the follow-up actions for these issues, as shown in Table 1, must be taken.

- The remedy at OU2 is expected to be protective of human health and the environment upon completion. In the short-term, exposure pathways that could result in unacceptable risks are being controlled as long as the fence around the perimeter of the Site is maintained.

Several issues that do not immediately impact the current protectiveness of the remedy need to be resolved to ensure the future protectiveness of the Site. The issues and recommended follow-up actions are shown in Table 1.

Table 1
Recommendations and Follow-Up Actions

Issue No.	*Issue*	*Recommendation for Follow-Up*
1	Land use for the undeveloped parcels south of Winchester Estates allows for multiple uses, including residential and recreational, commercial and light industrial. The 1995 ROD did not fully address residential or recreational land use scenarios.	Evaluate residential and recreational land use scenarios and determine actions needed to allow these uses.
2	An ecological park/recreational area is proposed along the east bank of the Jordan River and has already been constructed along the west bank. Subsequent to the evaluation of risk for OU1, additional ecological samples were collected and analyzed. Ecological risks were identified in portions of the OU2 riparian corridor and will be addressed during OU2 remedial action.	Reevaluate ecological risks for OU1 to determine whether action needs to be taken.
3	There have been changes in the toxicity data used for the OU1 risk calculation. Additional data, including slag bioavailability studies, has also been collected since the issuance of the ROD.	Evaluate impacts of revised toxicity data and bioavailability studies on previous risk assessments and clean up levels.
4	Midvale City has requested that there be consistent cleanup levels at the two Midvale Slag OUs and Sharon Steel to facilitate the administration of ICs.	Evaluate approach to establishing site cleanup goals to consider consistent approaches between the sites.
5	Results from soil sampling in 2001 indicate that contamination present on the western edge of OU1 along the Jordan River is above the acceptable exposure levels for the commercial/industrial worker (and, presumably above levels appropriate for the anticipated and/or current land use of ecological park/recreational area).	Evaluate contamination with respect to risk estimates and cleanup levels and to determine whether a remedial action needs to occur.
6	Groundwater samples collected in 2001 and 2002 indicate that contamination above the MCLs exists in the shallow upper sand and gravel aquifer beneath the Site on the southern and western edges of OU1 adjacent to OU2.	Develop a comprehensive groundwater monitoring plan for OU1 and OU2 to determine if OU2 plumes are encroaching onto OU1, and evaluate if institutional controls or other remedial actions need to be implemented.
7	Semi-annual groundwater monitoring, as stipulated by the OU1 ROD, has not been conducted.	Conduct groundwater monitoring in accordance with decision documents.
8	Restricting site access to OU2 is an ongoing issue since trespassers vandalize the site fence and gates to enter this as yet unremediated portion of the Site.	Monitor integrity of the OU2 fence and gates and repair as necessary.
9	RAOs for OU1 do not address groundwater.	Incorporate OU2 groundwater RAOs on OU1.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site name *(from WasteLAN)*: Midvale Slag Superfund Site

EPA ID *(from WasteLAN)*: UTD081834277

Region: 8	**State: UT**	**City/County:** Midvale, Salt Lake County

SITE STATUS

NPL status: **O** Final **G** Deleted **G** Other (specify) _____

Remediation status (choose all that apply): **O** Under Construction **G** Operating **G** Complete

Multiple OUs?* **O** YES **G** NO	**Construction completion date:** Not applicable

Has site been put into reuse? **G** YES **O** NO

REVIEW STATUS

Lead agency: **O** EPA **G** State **G** Tribe **G** Other Federal Agency _____

Author name: Rebecca Thomas / Armando Saenz / Fran Costanzi

Author title: Remedial Project Managers	**Author affiliation:** US EPA Region 8

Review period:** July 21, 2003 to September 30, 2003

Date(s) of site inspection: August 6, 2003

Type of review:

O Post-SARA **G** Pre-SARA **G** NPL-Removal only
G Non-NPL Remedial Action Site **G** NPL State/Tribe-lead
G Regional Discretion

Review number: **O** 1 (first) **G** 2 (second) **G** 3 (third) **G** Other (specify) _____

Triggering action:

O Actual RA Onsite Construction at OU #1
G Actual RA Start at OU#____
G Construction Completion
G Previous Five-Year Review Report
G Other (specify) _____

Triggering action date *(from WasteLAN)*: May 6, 1996

Due date *(five years after triggering action date)*: May 6, 2001

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues:

The issues identified during this review include:

- Land use for the undeveloped parcels south of Winchester Estates allows for multiple uses, including residential and recreational, commercial and light industrial. The 1995 ROD did not fully address residential and recreational land use scenarios.
- An ecological park/recreational area is proposed along the east bank of the Jordan River and has already been constructed along the west bank. Subsequent to the evaluation of risk for OU1, additional ecological samples were collected and analyzed. Ecological risks were identified in portions of the OU2 riparian corridor and will be addressed during OU2 remedial action.
- There have been changes in the toxicity data used for the OU1 risk calculation. Additional data, including slag bioavailability studies, has also been collected since the issuance of the ROD.
- Midvale City has requested that there be consistent cleanup levels at the two Midvale Slag OUs and Sharon Steel to facilitate the administration of ICs.
- Results from soil sampling in 2001 indicates that contamination present on the western edge of OU1 along the Jordan River is above the acceptable exposure levels for the commercial/industrial worker (and, presumably above levels appropriate for the anticipated and/or current land use of ecological park/recreational area).
- Groundwater samples collected in 2001 and 2002 indicate that contamination above the MCLs exists in the shallow upper sand and gravel aquifer beneath the Site on the southern and western edges of OU1 adjacent to OU2.
- Semi-annual groundwater monitoring, as stipulated by the OU1 ROD, has not been conducted.
- Restricting site access to OU2 is an ongoing issue since trespassers vandalize the site fence and gates to enter this as yet unremediated portion of the Site.
- RAOs for OU1 do not address groundwater.

Recommendations and Follow-up Actions:

- Evaluate residential and recreational land use scenario and determine actions needed to allow these uses.
- Reevaluate ecological risks for OU1 to determine what action needs to be taken.
- Evaluate impacts of revised toxicity data and bioavailability studies on risk assessments and clean up levels.
- Evaluate approach to establishing site cleanup goals to consider consistent approaches between the sites.
- Evaluate contamination with respect to risk estimates and cleanup levels and determine whether a remedial action needs to occur.
- Develop a comprehensive groundwater monitoring plan for OU1 and OU2 to determine if OU2

Five-Year Review Summary Form, cont'd.

- Conduct groundwater monitoring in accordance with decision documents.

- Monitor integrity of the OU2 fence and gates and repair as necessary.

- Incorporate OU2 groundwater RAOs on OU1.

Protectiveness Statement(s):

The remedial actions required by the decision documents have been partially completed for OU1 and are under design for OU2. In general, the remedy as implemented in OU1 is protective in the short-term, but requires follow-up actions to be taken to be protective in the long-term. The remedy for OU2 is expected to be protective upon completion. Detailed protectiveness statements for each portion of the Site, including the Winchester Estates Mobile Home Park in the northern portion of OU1, the undeveloped parcels in the southern portion of OU1, and OU2, are as follows:

- The remedy at OU1 as implemented in the Winchester Estates Mobile Home Park, the portion of the Site currently inhabited, is functioning as intended by the decision documents and remains protective.

- The remedy has not been fully implemented in the undeveloped southern portion of OU1, as the ICs have not been put in place and the groundwater monitoring stipulated in the ROD has not been conducted. The remedy as implemented in this portion of OU1 is protective of human health and the environment in the short-term because there are no receptors other than trespassers, and the remedy is protective under both the commercial/industrial and trespasser exposure scenarios. Furthermore, nearby residences and businesses are connected to the municipal water supply. In addition to these issues, other issues involving proposed land uses, changes in toxicity data, and additional soils and groundwater contamination identified in sampling conducted in 2001 and 2002 were identified during this five-year review. In order for the remedy to be protective in the long-term, the follow-up actions for these issues, as outlined above, must be taken.

- The remedy at OU2 is expected to be protective of human health and the environment upon completion. In the short-term, exposure pathways that could result in unacceptable risks are being controlled as long as the fence around the perimeter of the Site is maintained.

Other Comments:

Section 1
Introduction

The U. S. Environmental Protection Agency (EPA) Region 8 has conducted a five-year review of the RAs implemented at the Midvale Slag Superfund Site, CERCLIS ID: UTD081834277, in Midvale, Salt Lake County, Utah. This is the first five-year review for the Midvale Slag Superfund Site. The RAs stipulated in the Record of Decision (ROD) for Operable Unit 1 (OU1) are complete. However, the ROD for Operable Unit 2 (OU2) was signed in October 2002. Therefore, the remedial design (RD) for OU2 is ongoing, and the RA has not been initiated. As such, this first five-year review for the Site focuses on OU1. OU2 will be included in more detail in subsequent five-year reviews after the RA for that part of the Site has been completed.

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in the five-year review report. In addition, the five-year review report identifies deficiencies found during the review, if any, and identifies recommendations to address them. This first five-year review was conducted from July 2003 through September 2003. CDM Federal Programs Corporation (CDM), an EPA contractor, supported the EPA in the preparation of this review.

This five-year review is required by statute. The EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA 121(c), as amended, states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.*

The NCP Section 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR), states:

> *If a remedial action is selected that results in hazardous substances, pollutants or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

This is the first five-year review of the Site. The trigger action for this review is the initiation of the RAs on OU1 in May 1996. The five-year review is required since hazardous substances, pollutants, or contaminants remain at OU1 above levels that allow for unrestricted use and unlimited exposure. This five-year review was conducted per the guidelines in the *EPA Comprehensive Five-Year Review Guidance*, June 2001.

Section 2
Site Chronology

Table 2 summarizes the important events and relevant dates in the Site's chronology.

Table 2
Chronology of Site Events

Date	*Event*
1871 - 1971	Ore processing conducted at the Site.
1982	Salt Lake County Health Department and the Utah Department of Health (UDOH) conducted environmental investigations of the Site.
March 1983	UDOH and EPA conducted a preliminary assessment of the Site.
April 1984	State of Utah Bureau of Solid and Hazardous Waste (BSHW) conducted a site inspection of the Site.
June 1985	EPA conducted a field investigation at the Site.
August 1985	Ecology and Environment, an EPA technical assistance team contractor, conducted an investigation of surface water and sediment in the Jordan River.
1986	Valley Materials Corporation (VMC) using the services of EarthFax Engineering, performed a preliminary characterization of the Site.
June 1986	EPA proposed listing the Site on the National Priorities List (NPL).
1988	Jacobs Engineering Group conducted a site investigation for EPA Region 8.
March 1990	EPA signed an Action Memorandum to perform a removal action, calling for the installation of a fence around both OUs.
December 1990	Removal action to dispose of lab chemicals and explosives remaining onsite from an abandoned lab facility.
February 1991	The Site was added to the NPL.
February 1992	The *LR Parcel Data Summary Report for Operable Unit No.1* was completed by URS Consultants for EPA.
June 1992	The *Site Characterization Report for Operable Unit No. 1 was* completed by URS Consultants for EPA.
December 1992	Sverdrup Corporation, under contract to EPA, conducted a preliminary investigation (Phase 0) of OU2.
January 1993	Phase 0 preliminary investigation report submitted by Sverdrup Corporation.
February 1993	EPA and Utah Department of Environmental Quality (UDEQ) make a joint decision to conduct an engineering evaluation/cost analysis (EE/CA) and a non-time critical removal action in an effort to expedite the cleanup of OU2.
1994	The *Final Feasibility Study Report of Operable Unit No. 1* was completed by Roy F. Weston, Inc. for UDEQ.
April 1995	EPA issued a Record of Decision (ROD) for OU1 with concurrence from UDEQ. The U. S. Bureau of Reclamation (USBR), working under an agreement with UDEQ, subsequently prepared the design and specifications for remediation of the contaminated soil on the WENW parcel. EPA signed an Action Memorandum to perform a removal action to install additional fencing between OU1 and OU2.
July 1995	EPA signed an Action Memorandum for a non-time critical removal action at OU2 to address mixed smelter waste (MSW) and associated contaminated soils on OU2.
May 1996	RA construction began for the remediation of the contaminated soil on the WENW Parcel of OU1, with construction oversight performed by the USBR.
June 1996	EPA signed an Action Memorandum to perform a removal action on OU2 calling for the proper closure of wells onsite.

Table 2
Chronology of Site Events

Date	*Event*
August 1996	USBR and UDEQ confirmed that construction on the WENW Parcel on OU1 was complete. An archeological evaluation was performed on a small, contaminated area in the southeastern portion of OU2 that became known as the “Midvale Pioneer Cemetery.”
September 1996	UDEQ instructed Roy F. Weston, Inc. to prepare a risk evaluation report for the undeveloped residential portion of WESE. EPA signed an Action Memorandum for time-critical removal action on the property of Butterfield Lumber Company.
October 1996	Time-critical removal action on the property of Butterfield Lumber Company located on OU2 initiated. EPA signed an Action Memorandum authorizing time-critical removal action on the Pioneer Cemetery located on OU2.
1997	USBR prepared the design and specifications for the remediation of the contaminated soil on the WESE Parcel of OU1. Several treatability studies conducted to test various solidification and stabilization mixtures for MSW on OU2.
April 1997	Time-critical removal action at the Pioneer Cemetery on OU2 was completed.
1998	RA construction performed on the WESE Parcel of OU1, with construction oversight performed by the USBR. EPA finalized the supplemental remedial investigation report for groundwater for OU2.
May 1998	ESD issued by UDEQ documenting two changes to the OU1 ROD: (1) excavation of contaminated soils in WESE Parcel of OU1 and placement of those soils on OU2, rather than placing a soil cover over those soils and (2) removal of the requirement for institutional controls for the contaminated soils in the WESE Parcel of OU1, since those soils were to be excavated and placed on OU2.
November 1998	The USBR and UDEQ confirmed that construction on the WESE Parcel of OU1 was complete.
1999	Implementation of the MSW remedy postponed, with UDEQ concurrence, pending the evaluation and selection of remedies for all three media of OU2.
January 1999	Final inspection conducted by EPA, UDEQ, and USBR for the RAs completed on OU1.
March 1999	Final RA report for OU1 remedy completed.
July 1999	The Site became EPA Region 8's pilot program for the Superfund Redevelopment Initiative.
May-June 2001	An additional field investigation (Phase 1) was performed at the Site by CDM.
October 2001	A removal action was completed on OU1. Material from approximately 84 deteriorated drums was bulked and disposed.
January 2002	An additional field investigation (Phase 2) was performed at the Site by CDM.
October 2002	EPA issued the ROD for OU2. Littleson, Inc. is preparing the remedial design for the OU2 smelter waste portion of the remedy. EPA is preparing the remedial design for the groundwater portion of the remedy.

Section 3
Background

3.1 Location and Setting

The Site is located 12 miles south of Salt Lake City, Utah, with the majority of the Site within the city limits of Midvale (Figure 1). The northern portion of the Site extends into the City of Murray. The Site is bounded approximately by the following: 7800 South Street on the south, the Jordan River on the west, 6400 South Street on the north, 700 West Street on the northeast and east, and Holden Street on the southeast. The Site encompasses approximately 446 acres and is divided into two operable units, OU1 and OU2. OU1, the focus of this five-year review, comprises the northern portion of the Site and includes the Winchester Estates residential development. OU2 comprises the southern portion of the Site. A fence, which is in line with 7200 South Street and just north of the smelter slag deposits, defines the boundary between OU1 and OU2.

OU1 encompasses approximately 266 acres (Figure 1) and is bounded by the following: the fence between OU1 and OU2 marks the southern border; the Jordan River marks the western border; 6400 South Street (Winchester Avenue) marks the northern border; and 700 West Street marks the eastern border. OU1 also includes the Winchester Estates Mobile Home Park, the abandoned Midvale Wastewater Treatment Plant (WWTP), the lagoons area, and jurisdictional wetlands. Because of the unique characteristics of each portion of OU1 and to facilitate the organization of the remedial investigation (RI), OU1 was divided into the following parcels:

- LR - The area occupied by the right-of-way for the proposed Jordan River Boulevard, the southern one-third of OU1
- LF - The west-central portion of OU1 (site of a small landfill)
- LG - The area occupied by the abandoned WWTP lagoons, the east-central portion of OU1
- WE - The area occupied by the Winchester Estates, the northern one-third of OU1, bounded on the north by 6400 South Street and on the west by the Jordan River

These parcels are depicted on Figure 2.

The Winchester Estates Parcel was further subdivided into the following subparcels:

- WENW - The northwestern portion of OU1 that includes the current Winchester Estates residential development, bordered on the north by 6400 South Street and on the west by the Jordan River
- WESE - The undeveloped southeast portion of Winchester Estates, bordered on the east by 700 West Street

The Site is located in the Salt Lake Valley, a north-south oriented topographic feature bounded to the west by the Oquirrh mountains and on the east by the Wasatch Range. Thrusting, faulting, folding, and igneous

intrusions are responsible for the presence and form of these mountain ranges. These ranges are the source of the Quaternary alluvial sediments that overlie much of the valley floor.

The Site lies on the Jordan River floodplain and slopes gently to the west, toward the river. Floodplain soils consist of silty clay loams, silty clays, sands, and gravels. Sand and gravelly fill materials from an U. S. Interstate Highway 215 construction project were spread over the southeastern portion of OU1, primarily Parcel LG and the eastern portion of Parcel LR. The thickness of fill materials was determined by borehole data to range from zero at the western margin of the fill to 19 feet along the eastern edge of Parcels LR and LG.

The fill material consistently grades to a silty and sandy clay at the native soil interface. The top 30 feet of the native zone typically is organic, sticky clay, and silty in places, becoming sandier downward. The clay is underlain by fine- to medium-grained sand, which coarsens downward and often grades into gravelly sands or sandy gravels. The occurrence of slag layers within the native soil zone was noted during drilling in spring 1992. These occurrences appeared to correlate with the presence of relatively high metals content based on chemical analyses. The slag layers were noted throughout OU1 but were most apparent on the LG and LR parcels.

3.2 Site History

Little information is available describing historical activities on OU1 prior to the 1940s. Before that time, it is generally believed that the land was used as pasture with no industrial activities. A 1952 aerial photograph of the southern two-thirds of OU1 showed no evidence of commercial/ industrial use or disturbed ground with the exception of the small landfill (less than 1 acre) and an associated unpaved road. Disposal of domestic trash and household goods occurred on the southwest corner of the LF Parcel from approximately the 1940s until a landfill was established by the county in the 1960s. The South Valley Water Reclamation District operated the Midvale WWTP on OU1 (LR Parcel) from 1959 until 1986. The plant originally consisted of a trickling filter system. An aerated lagoon system consisting of three lagoons was added in 1976 and operated until the closure of the WWTP in 1986. The lagoons were closed according to an approved closure plan, and material excavated as part of the Interstate Highway 215 construction project was subsequently deposited on the former lagoon location.

The land south of OU1 was the site of historical smelting activities beginning in 1871 and ending in 1958. The smelting activities were presumed to account for the contaminants detected at OU1.

The 266 acres comprising OU1 were presumably contaminated by migration of wastes created from smelting and refining activities on OU2. While most of OU1 is vacant land, the northwestern portion contains Winchester Estates, a residential mobile home development. Lead- and arsenic-contaminated soils in residential yards were removed and replaced with clean soil in 1996. OU2 is currently being addressed under CERCLA.

There are no known discrete waste sources at OU1. It is inferred from available data that the inorganic contaminants detected on OU1 are derived from discrete waste sources identified on OU2. The transport mechanisms thought to account for contamination of OU1 soils include the following:

- Wind transport of slag dust and possibly larger particles onto OU1 from slag piles on OU2

- Surface water transport of slag dust and possibly larger particles onto OU1 from slag piles on OU2

- Fallout of smelter fumes onto OU1 from smelter chimneys on OU2 and/or the south chimney on OU1 of the former Sharon Steel Superfund Site, which is adjacent to the southern portion of OU2

- Deliberate placement of slag and possibly other smelter waste onto OU1 to fill wetlands or other low areas and to sand roads in the Winchester Estates development during snow or ice events

Based on the RI sample results, the baseline risk assessment (BRA), and experience at similar sites, UDEQ/EPA designated arsenic, cadmium, and lead as the contaminants of concern (COCs) at OU1.

The distribution of the COCs in soils at OU1 demonstrates few discernable patterns. Arsenic concentrations in soils have been observed up to the low thousands of milligrams per kilogram (mg/kg). Cadmium was found to occur as high as 97 mg/kg. Locally, lead concentrations in the thousands of mg/kg were detected with typical concentrations in the tens and hundreds of mg/kg. In general, when one COC occurred at a high concentration, the other COCs were proportionally elevated.

The potential exists for mobilization of contamination from soils remaining on the Site to groundwater. However, OU1 wastes have been present on the Site for many years and in some locations groundwater has been in contact with visible slag without appreciable affects on groundwater. COC concentrations in OU1 groundwater were below Federal Maximum Contaminant Levels (MCLs) at the time the ROD was issued.

Much of OU1 is currently undeveloped or fenced and the only exposed population is the hypothetical trespasser. Hypothetical future residents/workers would be exposed to COC-containing surface soils on portions of parcels LF and LR west. Although COC-containing native soils are present on Parcels LG and LR east, both of these parcels are entirely covered with fill material imported during the construction of the U. S. Interstate Highway 215 interchange. Therefore the only possible exposure would involve excavating through the fill and into the native soils during building construction associated with future land development. The excavated native soils would have to be spread on the land surface and remain at the surface for a long-term exposure to occur.

Section 4
Remedial Actions

4.1 Remedy Selection

The following RA objective for OU1 was included in the ROD:

- Reduce or eliminate exposure to contaminated soils for current or hypothetical residents and hypothetical future workers

Media-specific cleanup levels were developed for COCs based on the human health risk equivalent to a pre-specified cancer risk, hazard index, or distribution of blood-lead levels. Table 3 summarizes the cleanup levels for the COCs.

Table 3
Media-Specific Cleanup Levels for COCs

	Cleanup Level (mg/kg)	
Contaminant	***Residential***	***Worker***
Arsenic	73	960
Cadmium	49	2,980
Lead	650	NE

mg/kg - milligrams per kilogram
NE - Not established because lead is of primary concern for children, a cleanup level was not established for worker exposure.

EPA issued the ROD for OU1 on April 28, 1995. The major components of the remedy selected by the ROD include:

- Excavation of the upper 18 inches of native soils at 14 residential yards in the Winchester Estates residential development (Parcel WENW). Import clean fill to restore the excavated residential yards as closely as possible to its original grade and condition. Dispose of excavated material in a Resource Conservation and Recovery Act (RCRA) Subtitle D landfill or store excavated material at OU2 pending remedy selection for OU2.

- Placement of a 2-foot thick monolayer soil cover on Parcel WESE (undeveloped southeast portion of Winchester Estates zoned residential).

- Implement deed restrictions or other institutional controls on Parcel WESE precluding most future excavation that would breach the monolayer soil cover. Any native soils from permitted excavations must be properly controlled onsite or disposed of in RCRA Subtitle D landfill.

- Implement deed restrictions or other institutional controls on Parcels LR east, LR west, LF, and LG that would prohibit future residential land use without additional property remediation to residential soil cleanup levels.

- Monitor groundwater semi-annually in the upper sand and gravel aquifer at the hydraulically downgradient site boundary (west and north) for a minimum of 5 years.

An ESD addressing two changes to the OU1 ROD was issued in May 1998. The two changes were as follows:

- **Modification of Two-Foot Permeable Soil Cover Cap**: The post-remediation soil profile in the OU1 ROD was to cover the contaminated soils in Parcel WESE with 18 inches of fill material overlain with 6 inches of organic topsoil. A vegetation plan would then be implemented with drought tolerant plant species consistent with the local ecosystem. Continued site investigations concurrent with the remedial design indicated that contamination of the soil profile with the contaminants of concern, namely lead and arsenic, were within the uppermost 6 inches for the majority of OU1. Due to the proximity of OU2, it was possible to economically excavate and dispose of the soils from the WESE Parcel at OU2. Excavated soils were replaced with 6 inches of top soil and seeded with native grass. This modification to the OU1 ROD was more economical (with a savings of 30 to 40 percent for the WESE Parcel in excavation, loading, hauling, and unloading of 6 inches of material versus 18 inches of material) and provided for clean, developable property.

- **Elimination of Institutional Controls**: Since all residential areas were cleaned up to 650 mg/kg lead and 73 mg/kg arsenic, the need for institutional controls for the WENW and WESE Parcels were not needed.

The remedy for OU1 was implemented by the State of Utah under a cooperative agreement with EPA. The final RA report was completed in March 1999.

4.2 Remedy Implementation

4.2.1 Remedy Implementation at Midvale Slag OU1

The OU1 remedy was implemented in two phases. The first phase, remediation of the 14 residential yards located on the WENW Parcel was conducted in 1996. The second phase, excavation of contaminated soil on the WESE Parcel and disposal on OU2 was conducted in 1998.

In May 1996, ASRC Contracting Company, Inc., under contract to UDEQ, began RA activities on the WENW Parcel. Construction oversight was performed by USBR. RA activities included site preparation (clearing and concrete removal) and excavation of contaminated soil. The excavated contaminated soil was hauled to the Sharon Steel Superfund Site, where it was placed under a clay and geomembrane cap. After all zones on a property were completely excavated, confirmatory soil sampling was conducted to verify that the zones were clean. Once the entire property was determined clean by confirmatory sampling, the property was backfilled with clean fill and restored as closely as possible to its original condition. The RA on the WENW Parcel was completed in August 1996.

Pre-final inspections were conducted on each property on both phases of OU1. The contractor addressed punch list items prepared for each property. After the contractor completed the punch list items, representatives from the contractor, USBR, UDEQ, and the property owner performed final inspections. Upon certification of final completions, EPA issued a “Clean Letter” to each property owner.

The Phase 2 work began in July 1998, when Envirocon, under contract to USBR, began RA activities on the WESE Parcel. Construction oversight was performed by USBR. Site activities included resurfacing a haul road, establishing a temporary repository for the contaminated materials from OU1 on OU2, and excavation of contaminated soil. The manner in which the RA was conducted was similar to that on the WENW Parcel. The excavated contaminated soil was hauled to OU2 and placed in the temporary repository. The remedy for OU2 will address the contaminated soil stockpiled there. The RA on the WESE Parcel was completed in November 1998.

In January 1999, a final inspection was conducted by representatives from the EPA, UDEQ, and USBR. The final inspection determined that the RA had been successfully executed and that the remedies were operational and functional. However, the institutional controls were not implemented.

4.2.2 Additional Removal Actions at Midvale Slag OU1

In October 2001, an RA was completed on OU1 to bulk and dispose of approximately 84 deteriorated drums. The material consisted mostly of investigation-derived wastes (drilling cuttings and personal protective equipment). One drum of oily liquid, apparently dumped on the Site illegally, was also disposed.

4.3 Remedy Operation and Maintenance

No operation and maintenance (O&M) activities other than semi-annual groundwater monitoring for OU1 was required by the OU1 ROD. The ROD stipulated a semi-annual groundwater monitoring program be implemented for OU1 for a 5-year period following completion of the RA at OU1. To date, no groundwater monitoring program has been implemented.

In May and June 2001, an additional field investigation (Phase I) was performed at OU1 and OU2 by CDM. The purpose of this investigation was to fill data gaps that had been identified throughout the Site. OU1 was included in the OU2 groundwater investigation since it is partially downgradient from OU2 and since the Murray City water supply well is located on OU1. The riparian zone on OU1 is downstream from OU2 and was sampled to fill data gaps. Additional soil, sediment, surface water, and groundwater samples were collected and analyses were conducted to characterize organic and inorganic contamination. Groundwater sampling was conducted again at the Site in January 2002. The results from groundwater and surface and subsurface soil samples are discussed in Section 6.4. No other groundwater sampling was conducted at OU1 during the previous 5 years.

Section 5
Progress Since Last Five-Year Review

This was the first five-year review for the Site.

Section 6
Five-Year Review Process

6.1 Administrative Components

The Midvale Slag Superfund Site five-year review team was led by Rebecca Thomas/Armando Saenz / Fran Costanzi, EPA project managers, and Joni Teter, EPA site attorney. The team also included technical staff from EPA's contractor, CDM, with expertise in the areas of geology, risk assessment, and civil/environmental engineering. Nancy Mueller of EPA acted as the community involvement coordinator for the five-year review.

The review was initiated in July 2003 and included the following components:

- Community involvement
- Local interviews
- Document review
- Data review
- Site inspection
- Five-year review report development and review

The schedule for the review extended through September 2003.

6.2 Community Notification and Involvement

EPA published notices in the Salt Lake Tribune and the Deseret News on August 14, 2003, to notify the community that EPA was conducting the five-year review. The notices identified Nancy Mueller of EPA and David Allison of UDEQ as points of contact if community members wished to request information or participate in an interview.

Interviews were conducted with various parties connected to the Site. The interviews were completed in August. Individuals from Winchester Estates and the City of Midvale and staff from relevant City of Midvale government agencies were interviewed by EPA and UDEQ community involvement coordinators. The current landowner of the majority of the Site, Littleson, Inc. and their attorney were also interviewed in August. The following individuals were interviewed:

1. David May, President, Citizens for a Safe Future for Midvale (Technical Assistance Grant Recipient), interviewed August 11, 2003

2. Kevin Murray, LeBoeuf, Lamb, Greene & MacRae, L.L.P, (Attorney for Littleson, Inc., property owner of the majority of the Site), interviewed August 12, 2003

3. Dennis Hamblin, Murray City, Director of Community Development, interviewed August 12, 2003

4. Jo Ann Seghini and Lee King, Mayor and City Manager, respectively, Midvale City, UT, interviewed August 14, 2003

5. Rick Battison, Citizens for a Safe Future for Midvale, interviewed August 13, 2003

6. Resident at time of clean up, Winchester Estates, interviewed August 13, 2003

7. Bob Soehnlen, Littleson, Inc. (owner of majority of Site), interviewed August 13, 2003

8. JoAnn Vaughn, Manager, Winchester Estates Mobile Home Park, interviewed via telephone on August 14, 2003.

6.3 Document Review

In preparing this five-year review, the following documents were reviewed:

- EPA Record of Decision for OU1, 1995
- Explanation of Significant Differences for OU1, 1998
- Remedial Design Drawings for WESE Parcel, 1998
- RA report, Midvale Slag Operable Unit 1, 1999
- City of Midvale Bingham Junction Ordinance, Chapter 17-7-9
- LR Parcel Data Summary Report, Midvale Slag Superfund Site Operable Unit No. 1, 1992
- Site Characterization Report, Midvale Slag Superfund Site Operable Unit No. 1, 1992
- Baseline Risk Assessment for the Midvale Slag Superfund Site Operable Unit 1, 1992
- Baseline Risk Assessment Report, Volume 2 of the OU2 Engineering Evaluation/Cost Analysis, 1994
- EPA Comprehensive Five-Year Review Guidance, 2001
- Final Focused Feasibility Study for Groundwater in OU2, 2002
- EPA Record of Decision for OU2, 2002

Full reference citations are included in Attachment 2 for each document reviewed.

Applicable or relevant and appropriate requirements (ARARs) were reviewed to determine whether any changes to the ARARs has occurred since the signing of the ROD and ESD that could impact the protectiveness of the remedy at the Site. The results of this review are discussed in Section 7.2, Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Selection Still Valid?

The BRAs for both human health and environmental risk were reviewed. It was determined that site-

specific estimates of bioavailability of slag were developed for arsenic and lead subsequent to the development of cleanup levels for OU1. Therefore, that information was not used for developing the cleanup goals for OU1. Also, it was determined that there have been changes to toxicity criteria used in these risk assessments, as follows:

Reference Doses

1) EPA National Center for Environmental Assessment (NCEA) has an oral reference dose (RfD) for aluminum of 1.0 mg/kg-day [OU1 Human Health Risk Assessment (HHRA) did not have an RfD for aluminum].
2) EPA IRIS has revised the oral RfD for beryllium from 5E-3 mg/kg-day (presented in OU1 HHRA) to 2E-3 mg/kg-day.

3) EPA NCEA has an oral RfD for cobalt of 2E-2 mg/kg-day (OU1 HHRA did not have an RfD for cobalt).

Cancer Slope Factors

1) The EPA Integrated Risk Information System (IRIS) has revised the oral cancer slope factor (CSF) for arsenic from 1.8 (mg/kg-day)-1 to 1.5 (mg/kg-day)-1.

2) EPA has withdrawn the oral CSF for beryllium, indicating that the database is inadequate for the assessment of carcinogenicity. The OU1 HHRA uses the old oral CSF for beryllium and, based upon the now withdrawn CSF, beryllium was one of the cancer risk drivers for both soil and groundwater.

Concerning the ecological risk, the BRA for environmental risk acknowledged that contaminants of potential ecological concern are present on OU1 that could pose a risk of adverse impacts to exposed ecological receptors. However, it also acknowledged that several uncertainties existed with respect to this ecological risk. Due to the anticipated land use as commercial/industrial coupled with the cost and difficulty in implementing a pristine cleanup, the EPA did not pursue action to address those potential risks. Since the completion of the BRA, changes have been made to the anticipated land use, and further studies concerning environmental risk were conducted on the OU2 portion of the Site. An ecological park/recreational area has been constructed in the riparian zone along the western side of the Jordan River, and a similar use is now proposed for the eastern side. Also, additional studies for OU2 resulted in a revision to the approach to handling environmental risk for that portion of the Site.

6.4 Data Review

The remedy includes a semi-annual groundwater monitoring program designed to track groundwater levels and to evaluate groundwater quality.

In preparing this five-year review report, data from the following activities were reviewed and evaluated:

- In May and June 2001 and January 2002, an additional field investigation was performed on OU1 and OU2 by CDM. The purpose of this investigation was to fill data gaps identified throughout the Midvale Slag Site, particularly in the groundwater and the riparian zone. Samples were collected from monitoring wells sitewide and surface and subsurface soils on the western extent of OU1 and the west bank of the Jordan River.

A summary of these data and their interpretation for demonstrating remedy performance is provided

below. The results for samples collected during the additional field investigation are tabulated in Attachment 3. Sample locations are shown on Figures 3 - 5 in Attachment 1.

6.4.1 Groundwater

The OU1 ROD specified semi-annual groundwater monitoring for a period of 5 years after remedy implementation. However, the only groundwater samples collected from OU1 occurred during two events in May/June 2001 and January 2002. Monitoring wells sitewide

were sampled for dissolved and total inorganic contaminants, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs).

Although groundwater was not the focus of the OU1 ROD, chemical-specific ARARs were developed for arsenic (50 µg/L) and cadmium (5 µg/L). Also, an action-specific ARAR for groundwater protection was specified. This ARAR stated that although concentrations of COCs were locally elevated above apparent background concentrations, all of the COCs were below MCLs at the time except for Well LF008, where the lead concentration at 23 µg/L exceeded the Utah Ground Water Quality Standard (15 µg/L). EPA and the UDEQ agreed to apply an alternate concentration limit (ACL) pursuant to the Utah Annotated Code (UAC) R317 - to bring the remedy into compliance with ARARs. The justification for applying an ACL is provided in Section IX, Criterion 2 of the ROD.

The data collected during the additional investigations of 2001 and 2002 indicate that the groundwater in the southern portions of OU1 have been impacted by VOC contamination originating from an off-site source. This VOC contamination was also identified on OU2. UDEQ is performing a preliminary assessment on the VOC source and extent. Because only chemical-specific ARARs for arsenic and cadmium and an action-specific ARAR for lead were developed as part of the OU1 ROD, the potential chemical-specific ARARs for groundwater from the OU2 feasibility study (FS) were used to evaluate the data from the additional field investigation. Table 4 below summarizes the potential chemical-specific ARARs for groundwater for OU2.

Table 4
Potential Chemical-Specific ARARs for Groundwater

Chemical	MCL/MCLG[1]	State Primary Drinking Water Standard[2]	State Drinking Water Action Levels[3]	State Groundwater Quality Standards[4]
	Concentration (µg/L)			
Antimony	6 / 6	6	NA	NA
Arsenic	50 / NA	50	NA	50
Cadmium	5 / 5	5	NA	5
Iron	NA / NA	NA	NA	NA
Lead	NA / zero	NA	15	15
Manganese	NA / NA	NA	NA	NA
Selenium	50 / 50	50	NA	50
Thallium	2 / 0.5	2	NA	NA
Tetrachloroethene (PCE)	5 / zero	5	NA	5
Trichloroethene (TCE)	5 / zero	5	NA	5

µg/L micrograms per liter
NA No standard established
1. 40 CFR Part 141, Subparts B, F, and G. MCLs are enforceable drinking water standards under the Safe Drinking Water Act. Maximum Contaminant Level Goals (MCLGs) are unenforceable goals at which "no known or anticipated adverse affect on the health of persons" will occur. Under the NCP, MCLs and non-zero MCLGs are relevant and appropriate standards for surface and groundwater, which is a current or potential source of drinking water. The MCL for arsenic will change to 10 µg/L effective in January 2006.
2. UAC R309-103-2. State Primary Drinking Water Standard. The primary standards and treatment techniques are established for the protection of human health. The MCL for arsenic will change to 10 µg/L effective in January 2006.
3. UAC R309-103-2. State Action Levels. The lead action level is exceeded if the concentration of lead in more than 10 percent of the tap water samples collected during any monitoring period is greater than 15 µg/L.
4. UAC R317-6-2. State Groundwater Quality Standards. These levels are for protection of uncontaminated groundwater and corrective action.

Rather than applying the chemical-specific ARARs for OU2 groundwater, EPA and the UDEQ agreed to apply ACLs. The OU2 ROD stipulates ACLs for arsenic (7,000 µg/L), cadmium (1,560 µg/L), selenium (900 µg/L), and antimony (380 µg/L).

Of the 16 OU1 monitoring wells sampled, 9 were found to contain tetrachloroethene (PCE). Samples from four wells (LR006, LR020, LR029, and LR033) contained PCE above the MCL of 5 micrograms per liter (µg/L). The highest concentrations of PCE were detected in samples collected from LR033, a monitoring well adjacent to OU2, where the VOC contamination was also found. None of these wells were sampled for VOCs during the OU1 site characterization. Five of the monitoring wells contained low (less than 1.5 µg/L) concentrations of contaminants typically thought of as degradation products of PCE. Although a distinct pattern of PCE groundwater contamination was observed, due to limited data no trend was apparent. No contamination was observed in wells LG004 and LG014, which could be considered the closest monitoring points to the Murray Well (approximately 3,500 feet north of OU2 in Parcel WESE).

The primary inorganic COCs are arsenic, cadmium, and lead. Although inorganic analytes were detected in groundwater samples, concentrations of antimony, arsenic, cadmium, and thallium exceeded MCLs only in monitoring wells along the Jordan River (LF003, LF008, LR006, and LR029). This was the only pattern of contamination or trend observable from the limited inorganic contaminant data.

The only SVOC consistently detected in groundwater samples was bis(2-ethylhexyl) phthalate, also known as di(2-ethylhexyl) phthalate. Concentrations of bis(2-ethylhexyl) phthalate ranged from not detected above the sample quantitation limit to 250 µg/L. The MCL for di(2-ethylhexyl) phthalate is 6 µg/L. No pattern of contamination or trend was observed from the limited SVOC data.

6.4.2 Surface and Subsurface Soil

Surface and subsurface soil samples were collected along the western edge of OU1 along the Jordan River and on the western bank of the Jordan River. Soil samples were analyzed for inorganic contaminants, VOCs, and SVOCs. Sample results were compared with the OU1 ROD cleanup goals (Table 3).

Arsenic and lead were detected at concentrations that exceeded the residential OU1 ROD cleanup goals (73 and 650 ppm, respectively) in several surface soil samples. One surface soil sample location (RS029) exceeded the OU1 ROD worker cleanup goal for arsenic of 960 mg/kg (result was 992 mg/kg). The highest concentrations of surface soil contamination were detected in samples collected adjacent to OU2 and between the 7200 South Street extension and the WENW Parcel. Concentrations generally decreased farther from the Jordan River. Contamination in excess of the OU1 ROD residential cleanup goals was observed in soil samples collected from the west side of the Jordan River.

Subsurface inorganic contamination is more variable than the surface contamination. Contamination greater than the residential OU1 cleanup goals was observed in samples 3 feet below ground surface and greater in sample locations north of 7200 South Street extension (arsenic from 87 mg/kg to 425 mg/kg and lead from 1,100 mg/kg to 3,970 mg/kg), the west bank of the Jordan River (arsenic from 122 mg/kg to 144 mg/kg and lead from 2,610 mg/kg to 2,760 mg/kg), and adjacent to OU2 (arsenic from 87 mg/kg to 425 mg/kg and lead from 1,100 mg/kg to 3,970 mg/kg).

No significant concentrations of VOCs and SVOCs were detected in the surface and subsurface soil samples.

6.5 Site Inspection

A site inspection was performed on August 6, 2003, by the CDM project manager. The site inspection objective was to determine whether the current condition of OU1 complies with that envisioned by the decision documents. The OU1 remedy included the removal of soils above the risk-based cleanup criteria in both the WENW and WESE Parcels, deed restrictions or institutional controls to prevent residential development in the central and southern portions of OU1 (the LR, LF, and LG parcels), and semi-annual groundwater monitoring for a period 5 years. Thus, there were no physical aspects of the remedy to inspect. Rather, a site walkover was performed to observe the current status of OU1, and visits to the City of Midvale and Salt Lake County were conducted to determine what deed restrictions or institutional controls are in place. The site inspection form is provided in Attachment 4. The photographic record documenting site conditions at the time of the inspection is included in Attachment 5.

The RA for the removal of contaminated soils is complete in WENW and WESE. The haul road from Parcel WESE to where the soils were placed in a temporary repository in OU2 still exists. Also, the soil stockpiles of material placed on the eastern portion of OU1 from the construction of local highways are still present. The extension of 7200 South Street envisioned during the OU1 ROD stage of the project has been constructed. The abandoned wastewater treatment plant and other site features appear to be as they existed at the time of the issuance of the OU1 ROD. There are also several areas throughout OU1 that contain construction debris. Other than the construction of the road through OU1, the current condition of that portion of the Site appears to be similar to what it was immediately following the RA.

OU1 is surrounded by a fence, except in the vicinity of the road that has been constructed through the

southern portion of OU1. It appears that the fence in the areas intercepted by the road right-of-way was removed to allow construction of the road, and it was not replaced following construction. Therefore, OU1 can be easily accessed by trespassers at any location along the 7200 South Street extension. In fact, there are several turnouts constructed in the road, which allow people to park and walk through OU1. The unimproved roads and trails entering OU1 are either gated or blocked off with soil stockpiles, making OU1 inaccessible to vehicles.

A visit to the City of Midvale revealed that the southern portion of OU1 (that portion in the City of Midvale) is now part of the Bingham Junction Zone, which allows for residential development only if it is allowed by the environmental status of that portion of the Site. Any proposed development at the Site will have to go through the City's approval process, which will allow them control of the construction completed as part of that development. This is a reflection of the stipulation in the ROD that prohibits residential development unless further remediation occurs. However, the ROD did not include guidance on what actions would be required to make the undeveloped portions of the property suitable for residential use.

Additionally, a visit was conducted to Salt Lake County to determine if any deed restrictions are in place for the undeveloped southern portion of OU1. Research at the County Recorder's Office revealed that no deed restrictions are in place on the undeveloped parcels south of the Winchester Estates. According to the County Development Services Office, deed restrictions are not placed on a property until the Site is subdivided. Because OU1 is undeveloped, the county has not put deed restrictions on the property. Deed restrictions are also not put in place until the property owner instructs the county to do so.

6.6 Interviews

Interviews with various representatives of the community affected by the Midvale Slag Superfund Site in Midvale, Utah were conducted by David Allison of UDEQ and Nancy Mueller of EPA. The interviews took place from August 11 through August 14, 2003.

The primary concern expressed by most of those interviewed was the length of time it has taken to address the Site. Midvale City officials view the Site and lack of visible progress in the clean up as the primary "bottlenecks" preventing development of a prime parcel of land within the City. The lack of redevelopment opportunities represents a lot of lost revenue to the City.

City officials are pleased with the current working relationships among all of the agencies involved in addressing the Site. Early on, relationships were "spotty" at best, but have improved greatly over the past few years. They are cautiously optimistic that work on the remedy (actually "moving dirt") will begin soon. They urge that the regulatory agencies continue the spirit of cooperation so that there are no changes to clean up standards in the future which would further delay implementation of their redevelopment "vision."

A small residential enclave was cleaned up as part of early remedial action at the Site. Winchester Estates, a mobile home park on the north end of the Site, had a number of yards with elevated levels of lead and arsenic. Standard residential clean up action was taken in those yards (excavation of up to 18 inches of contaminated soils; replacement of those soils and re-vegetation of the new soil). There is some concern in Winchester Estates regarding the poor quality of the replacement soil, but there are no health concerns.

Winchester Estates is an “adults only” community; children do not live there, although they do visit on occasion.

Some confusion exists regarding the separation of the Midvale Slag Site from the Sharon Steel Tailings Site in Midvale. A number of those interviewed simply combine the two sites in their minds.

Interview records are provided in Attachment 6.

Section 7
Technical Assessment

7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

A review of the documents, data, ARARs, and the results of the site inspection indicate that the entire remedy for OU1 is not functioning as intended by the 1995 ROD, as modified by the 1998 ESD, although most of the remedial activities required by the decision documents have been completed. It should be noted that the remedial action conducted in the Winchester Estates Mobile Home Park, the portion of the Site currently inhabited, is functioning as intended by the decision documents and remains protective. Contaminated soils were excavated to a minimum of 18 inches and replaced with clean fill on this portion of the Site, as stipulated by the ROD.

The southern portion of OU1 remains undeveloped. However, a number of issues were identified as part of the review that indicate that remedy is not functioning as intended by the decision documents in this portion of the Site. The parts of the remedy that are not working include groundwater monitoring, land use and institutional controls. A summary of these issues is discussed below.

Groundwater Monitoring - The OU1 ROD stipulated that an additional monitoring well was to be installed and semi-annual groundwater monitoring conducted as part of the OU1 groundwater remedy. A decision on future groundwater monitoring activities was to be made after 5 years of data had been collected and evaluated. The monitoring well was not installed as part of the RA and the semi-annual groundwater monitoring of this well and other wells stipulated in the ROD was not conducted, thus a decision on future groundwater monitoring activities can not be made based on semi-annual monitoring data.

EPA conducted two rounds of groundwater monitoring on OU2 to further define the nature and extent of groundwater emanating from OU2. This evaluation included some work on OU1 since OU1 is down gradient of OU2, and since Murray City has a wellhead located on the northeastern portion of OU1. This sampling and analysis was conducted in May/June 2001 and January 2002. In addition, the new well stipulated in the OU1 ROD was installed by EPA and sampled in the May/June 2001 sampling event.

Analytical results for these two rounds of sampling indicated that some of the metals contamination that was found on OU2 also exists in the southern and western portions of OU1. The results also indicated that there is no groundwater contamination near the Murray City wellhead. Furthermore, the contamination found is located in the shallow upper sand and gravel aquifer below the Site, whereas the Murray City well draws its water from the deep principal aquifer beneath the Site. No contamination above acceptable levels has been found in the lower deep principal aquifer.

At the time that the sampling and analysis described above was performed on OU1, one further issue related to groundwater was identified: the list of contaminants to be monitored for (as stipulated in the OU1 ROD) was inconsistent with the expanded list of contaminants to be monitored under the OU2 groundwater remedy. The two rounds of groundwater sampling conducted in 2001 and 2002 included the expanded list of contaminants.

The OU2 ROD presented a groundwater remedial action that included a limited action of groundwater monitoring with alternative concentration limits on both OU1 and OU2. This comprehensive plan was necessary since the contamination spread across both OUs and the monitoring plan included monitoring not only the core of the plume but also the lateral extent. The monitoring conducted under this comprehensive plan will comply with both the OU1 and OU2 RODs.

Land Use - The OU1 area was zoned I-2 which included residential, light/heavy industrial, and commercial designations when the ROD was signed. The I-2 designation was mistakenly interpreted by EPA to just include light/heavy industrial and commercial designations. Thus, residential scenarios were not considered in the remedial process.

Additionally, the City of Midvale has revised its zoning for the OU1 area based on the Bingham Junction ordinance. The current zoning continues to allow mixed uses (including residential, commercial and light industrial) but disallows heavy industrial land use on the Site. The landowner has proposed a mixed use scenario in recent redevelopment plans, which includes residential, and this appears to be supported by the community. Therefore, the potential for residential land use - and associated questions of protectiveness - need to be considered for much of OU1. Although EPA would not perform additional remediation to allow for residential uses, appropriate cleanup levels and remediation requirements would need to be developed.

Finally, a recreational scenario was not considered for the site. However, an ecological park/recreational area has been constructed in the riparian zone along the western side of the Jordan River, and a similar use is now proposed for the eastern side. This is a change from what the OU1 ROD anticipated and indicates the need to re-evaluate both the ecological risk and the human health risk for the recreational scenario for OU1.

Institutional Controls - A deed restriction or other ICs was required by the OU1 ROD to ensure the future use of the undeveloped commercial zoned parcels remain industrial/commercial unless additional remediation to residential soil cleanup levels occurs. The OU1 ROD, while allowing for other ICs, did not delineate what those additional ICs would be and how they would be implemented. The City of Midvale has passed a zoning ordinance that will control excavation of contaminated soils, however there is currently no enforceable document or agreement in place to support the need for the excavation ordinance to apply to the OU1 remedy. This portion of the remedy was not implemented.

7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Selection Still Valid?

Exposure Assumptions

As discussed above, the anticipated land use scenario for OU1 has changed from commercial/industrial to a mixed use scenario, which includes residential uses. The exposure assumptions in the BRA for human health and environment considered residential use, but found the cancer and noncancer risks associated with the contamination in the undeveloped portion of the OU to be unacceptable for that use without further remediation. Since the ROD anticipated the land use to be commercial/industrial, it did not require a remedial action for this portion of the Site unless the anticipated land use were to change. The ROD also did not include guidance on what actions would be required to make the undeveloped portions of the property suitable for residential use.

The exposure assumptions for ecological risk at OU1 also need to be re-evaluated. The ROD acknowledged that contaminants of potential ecological concern are present on OU1 that could pose a risk of adverse impacts to exposed ecological receptors. However, it also acknowledged that several uncertainties existed with respect to this ecological risk. The ROD document indicates that the remedy did not address potential ecological risks since the anticipated land use was commercial/industrial, and due to the perceived cost and difficulty of achieving a pristine cleanup. Since issuance of the ROD, the anticipated land use has changed, including an ecological park/recreational area along the banks of the Jordan River. Also, further studies concerning environmental risk were conducted during the OU2 investigation which resulted in the OU2 ROD requiring remediation in this area. Therefore, ecological risk for OU1 needs to be re-evaluated due to the new information to ensure that it is protective in the long-term.

An additional field investigation conducted in 2001 indicates that exposed contamination remains in soils along the Jordan River on the western edge of OU1, at levels above those identified in both the residential and the commercial/industrial worker scenarios for OU1. This potential human health issue needs to be addressed prior to the construction of the proposed ecological park/recreational area.

Groundwater sample results from the 2001 and 2002 field investigation indicate that some contamination, particularly VOCs, exists above the MCLs in the shallow upper sand and gravel aquifer in the southern and western portions of OU1 adjacent to OU2. This VOC contamination needs to be evaluated to determine if the remedy remains protective or if further remedial action or additional institutional controls need to be implemented. The exposure assumptions evaluated in the ROD did not consider this, as all groundwater sample results up to that time were below the MCLs, and the wells which had contamination in 2001 and 2002 were not sampled for VOCs during the OU1 site characterization. Currently all residences and businesses in the area are connected to a municipal water system and therefore are not exposed to the contaminated groundwater.

Toxicity Data

There have been several revisions to the toxicity data used in assessing risk for OU1 since the ROD was signed. The changes have been made to both reference doses and cancer slope factors. These changes include:

Reference Doses

1) The EPA NCEA has an oral RfD for aluminum of 1.0 mg/kg-day (OU1 HHRA did not have an RfD for aluminum).

2) EPA IRIS has revised the oral RfD for beryllium from 5E-3 mg/kg-day (presented in OU1 HHRA) to 2E-3 mg/kg-day.

3) EPA NCEA has an oral RfD for cobalt of 2E-2 mg/kg-day (OU1 HHRA did not have an RfD for cobalt).

Cancer Slope Factors

1) EPA IRIS has revised the oral CSF for arsenic from 1.8 (mg/kg-day)-1 to 1.5 (mg/kg-day)-1.

2) EPA has withdrawn the oral CSF for beryllium, indicating that the database is inadequate for the assessment of carcinogenicity. The OU1 HHRA uses the old oral CSF for beryllium and, based upon the now withdrawn CSF, beryllium was one of the cancer risk drivers for both soil and groundwater.

The potential impact of these changes in toxicity criteria should be evaluated for both risk estimates and cleanup levels. Also, subsequent to the development of cleanup levels for OU1, site-specific estimates of bioavailability of the slag were developed for arsenic and lead. The impact of these bioavailability estimates on the risk assessment and cleanup levels should be evaluated. These revised values should also be considered in the evaluation of remedial action requirements for residential and recreational development on the undeveloped portion of the Site south of Winchester Estates.

Cleanup Levels

An issue was raised during the five-year review by the City of Midvale which questions the apparent lack in consistency in the cleanup goals among the two operable units of the Midvale Site and the adjacent Sharon Steel Superfund Site. (All three areas were part of one operation when the facility was active.) The City raised this question from the perspective of its role as local government authority responsible for overseeing and enforcing excavation requirements and other ICs. The City has requested a uniform cleanup standard for each contaminant across all three sites (Midvale OU1 & OU2 and Sharon Steel).

The risk calculation approaches used to develop cleanup levels, and the cleanup levels themselves, need to be evaluated for consistency. The evaluation should also determine whether changes in toxicity criteria and more recent slag bioavailability data have a significant impact upon cleanup levels.

ARARs

The document review included an evaluation of whether ARARs identified in the OU1 ROD were still appropriate and/or needed to be updated. Based on this review, the OU1 ARARs need to be re-evaluated for the following reasons:

- The OU1 ROD did not identify any requirements in the category of "location specific" ARARs. Given the questions relating to ecological risk and land use changes noted above, this category of ARARs should be re-evaluated.

- The OU2 ROD identifies ARARs for groundwater and soils that are more current than the ARARs developed for OU1, and may provide a more appropriate level of protectiveness given the changes in land use discussed above. Thus, action-specific and chemical specific ARARs for groundwater and soils should be re-evaluated in light of the ARARs developed for OU2.

RAOs

The RAO established at the time of remedy selection for OU1 was:

- Reduce or eliminate exposure to contaminated soils for current or hypothetical residents and hypothetical future workers

This remedial action objective is still valid. However, it's been determined that OU2 groundwater RAOs should be applied to OU1 since the contamination crosses the boundaries of the OUs.

7.3 Question C: Has Any Other Information Come to Light that Could Call Into Question the Protectiveness of the Remedy?

No other information than the matters covered in Sections 7.1 and 7.2 has come to light during the five-year review that could call into question the protectiveness of the remedy.

Section 8
Issues

Based on the information collected during the first five-year report, the following issues summarized in Table 5 were identified.

Table 5
Issues Identified

Issue No.	*Issue*	*Affects Current Protectiveness of Remedy*	*Affects Future Protectiveness of Remedy*
1	Land use for the undeveloped parcels south of Winchester Estates allows for multiple uses, including residential and recreational, commercial and light industrial. The 1995 ROD did not fully address residential or recreational land use scenarios.	No	Yes
2	An ecological park/recreational area is proposed along the east bank of the Jordan River and has already been constructed along the west bank. Subsequent to the evaluation of risk for OU1, additional ecological samples were collected and analyzed. Ecological risks were identified in portions of the OU2 riparian corridor and will be addressed during OU2 remedial action.	No	Yes
3	There have been changes in the toxicity data used for the OU1 risk calculation. Additional data, including slag bioavailability studies, has also been collected since the issuance of the ROD.	No	Yes
4	Midvale City has requested that there be consistent cleanup levels at the two Midvale Slag OUs and Sharon Steel to facilitate the administration of ICs.	No	Yes
5	Results from soil sampling in 2001 indicates that contamination present on the western edge of OU1 along the Jordan River is above the acceptable exposure levels for the commercial/industrial worker (and, presumably above levels appropriate for the anticipated and/or current land use of ecological park/recreational area).	No	Yes
6	Groundwater samples collected in 2001 and 2002 indicate that contamination above the MCLs exists in the shallow upper sand and gravel aquifer beneath the Site on the southern and western edges of OU1 adjacent to OU2.	No	Yes
7	Semi-annual groundwater monitoring, as stipulated by the OU1 ROD, has not been conducted.	No	Potentially
8	Restricting site access to OU2 is an ongoing issue since trespassers vandalize the site fence and gates to enter this as yet unremediated portion of the Site.	No	Potentially
9	RAO's for OU1 do not address groundwater.	No	Potentially

Section 9
Recommendations and Follow-Up Actions

The recommendations and follow-up actions for the issues identified are summarized in Table 6.

Table 6
Recommendations and Follow-Up Actions

Issue No.	*Issue*	*Recommendation for Follow-Up*	*Lead*	*Status*
1	Land use for the undeveloped parcels south of Winchester Estates allows for multiple uses, including residential and recreational, commercial and light industrial. The 1995 ROD did not fully address residential or recreational land use scenarios.	Evaluate residential and recreational land use scenarios and determine actions needed to allow these uses.	EPA	The residential and recreational land use scenarios are under review by EPA as part of an upcoming risk assessment to be completed by March 31, 2004.
2	An ecological park/recreational area is proposed along the east bank of the Jordan River and has already been constructed along the west bank. Subsequent to the evaluation of risk for OU1, additional ecological samples were collected and analyzed. Ecological risks were identified in portions of the OU2 riparian corridor and will be addressed during OU2 remedial action.	Reevaluate ecological risks for OU1 to determine what action needs to be taken.	EPA/Midvale City	Work has started on a stakeholders group for the riparian zone. Evaluation of the ecological risks will be addressed in the upcoming risk assessment to be completed by March 31, 2004.
3	There have been changes in the toxicity data used for the OU1 risk calculation. Additional data, including slag bioavailability studies, has also been collected since the issuance of the ROD.	Evaluate impacts of revised toxicity data and bioavailability studies on previous risk assessments and clean up levels.	EPA	Evaluation of these risk assessment issues will be addressed in the upcoming risk assessment to be completed by March 31, 2004.
4	Midvale City has requested that there be consistent cleanup levels at the two Midvale Slag OUs and Sharon Steel to facilitate the administration of ICs.	Evaluate approach to establishing site cleanup goals to consider consistent approaches between the sites.	EPA	Evaluation of the cleanup levels will be addressed in the upcoming risk assessment to be completed by March 31, 2004.
5	Results from soil sampling in 2001 indicate that contamination present on the western edge of OU1 along the Jordan River is above the acceptable exposure levels for the commercial/industrial worker (and, presumably above levels appropriate for the anticipated and/or current land use of ecological park/recreational area).	Evaluate contamination with respect to risk estimates and cleanup levels and to determine whether a remedial action needs to occur.	EPA	Evaluation of this contamination will be addressed in the upcoming risk assessment to be completed by March 31, 2004.

Issue No.	Issue	Recommendation for Follow-Up	Lead	Status
6	Groundwater samples collected in 2001 and 2002 indicate that contamination above the MCLs exists in the shallow upper sand and gravel aquifer beneath the Site on the southern and western edges of OU1 adjacent to OU2.	Develop a comprehensive groundwater monitoring plan for OU1 and OU2 to determine if OU2 plumes are encroaching onto OU1, and evaluate if institutional controls or other remedial actions need to be implemented.	EPA	The comprehensive groundwater monitoring plan for OU1 and OU2 will be completed by December 31, 2003.
7	Semi-annual groundwater monitoring, as stipulated by the OU1 ROD, has not been conducted.	Conduct groundwater monitoring in accordance with decision documents.	To be determined	The comprehensive groundwater monitoring plan for OU1 and OU2 will be completed by December 31, 2003. Groundwater monitoring for OU1 as well as OU2 will be conducted in accordance with this plan and decision documents.
8	Restricting site access to OU2 is an ongoing issue since trespassers vandalize the site fence and gates to enter this as yet unremediated portion of the Site.	Monitor integrity of the OU2 fence and gates and repair as necessary.	Property Owner	Work to maintain fencing and gates to OU2 will be ongoing until remediation is complete.
9	RAO's for OU1 do not address groundwater.	Incorporate OU2 groundwater RAO's on OU1.	EPA	EPA will prepare a modification to the OU1 ROD, that will include the addition of RAOs for groundwater, by April 30, 2004.

Section 10
Protectiveness Statement(s)

The remedial actions required by the decision documents have been partially completed for OU1 and are under design for OU2. In general, the remedy as implemented in OU1 is protective in the short-term, but requires follow-up actions to be taken to be protective in the long-term. The remedy for OU2 is expected to be protective upon completion. Detailed protectiveness statements for each portion of the Site, including the Winchester Estates Mobile Home Park in the northern portion of OU1, the undeveloped parcels in the southern portion of OU1, and OU2, are as follows:

- The remedy at OU1 as implemented in the Winchester Estates Mobile Home Park, the portion of the Site currently inhabited, is functioning as intended by the decision documents and remains protective.

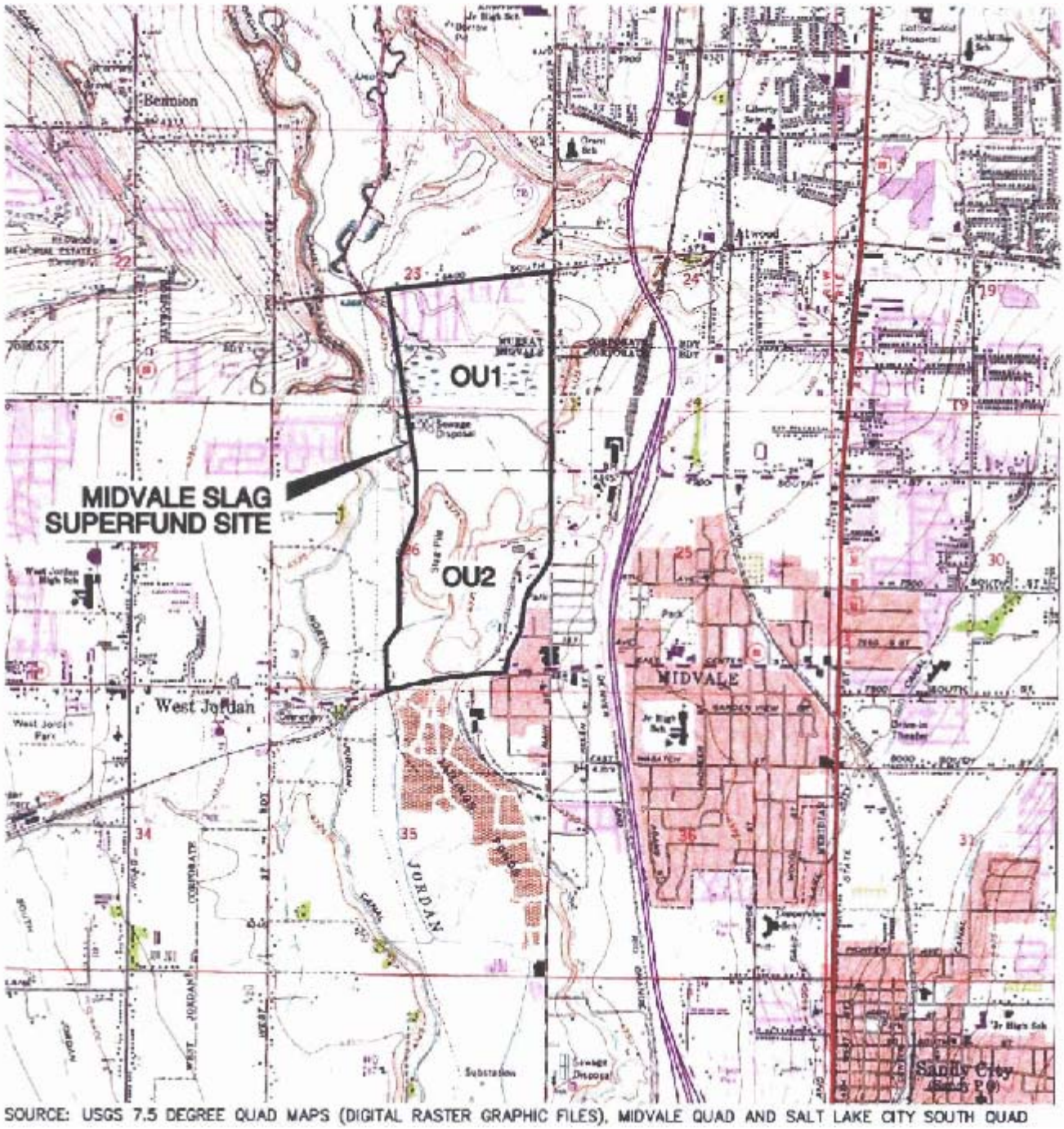
- The remedy has not been fully implemented in the undeveloped southern portion of OU1, as the ICs have not been put in place and the groundwater monitoring stipulated in the ROD has not been conducted. The remedy as implemented in this portion of OU1 is protective of human health and the environment in the short-term because there are no receptors other than trespassers, and the remedy is protective under both the commercial/industrial and trespasser exposure scenarios. Furthermore, nearby residences and businesses are connected to the municipal water supply. In addition to these issues, other issues involving proposed land uses, changes in toxicity data, and additional soils and groundwater contamination identified in sampling conducted in 2001 and 2002 were identified during this five-year review. In order for the remedy to be protective in the long-term, the follow-up actions for these issues, as outlined in Table 6, must be taken.

- The remedy at OU2 is expected to be protective of human health and the environment upon completion. In the short-term, exposure pathways that could result in unacceptable risks are being controlled as long as the fence around the perimeter of the Site is maintained.

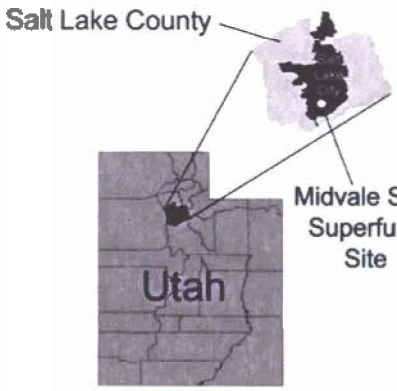
Section 11
Next Review

The next five-year review for the Midvale Slag OU1 Site is required by September 2008, five years from the date of this review.

Attachment 1
Figures



SOURCE: USGS 7.5 DEGREE QUAD MAPS (DIGITAL RASTER GRAPHIC FILES), MIDVALE QUAD AND SALT LAKE CITY SOUTH QUAD



N.

NOT TO SCALE

Figure 1

Solid Media Allocation

Site Location Map

Midvale Slag Superfund Site
Midvale, Utah

CDM

T:\CADD\3280-RAC8\086-Midvale\1a_Slag_FS\Fig1-01c.dwg 09-10-03

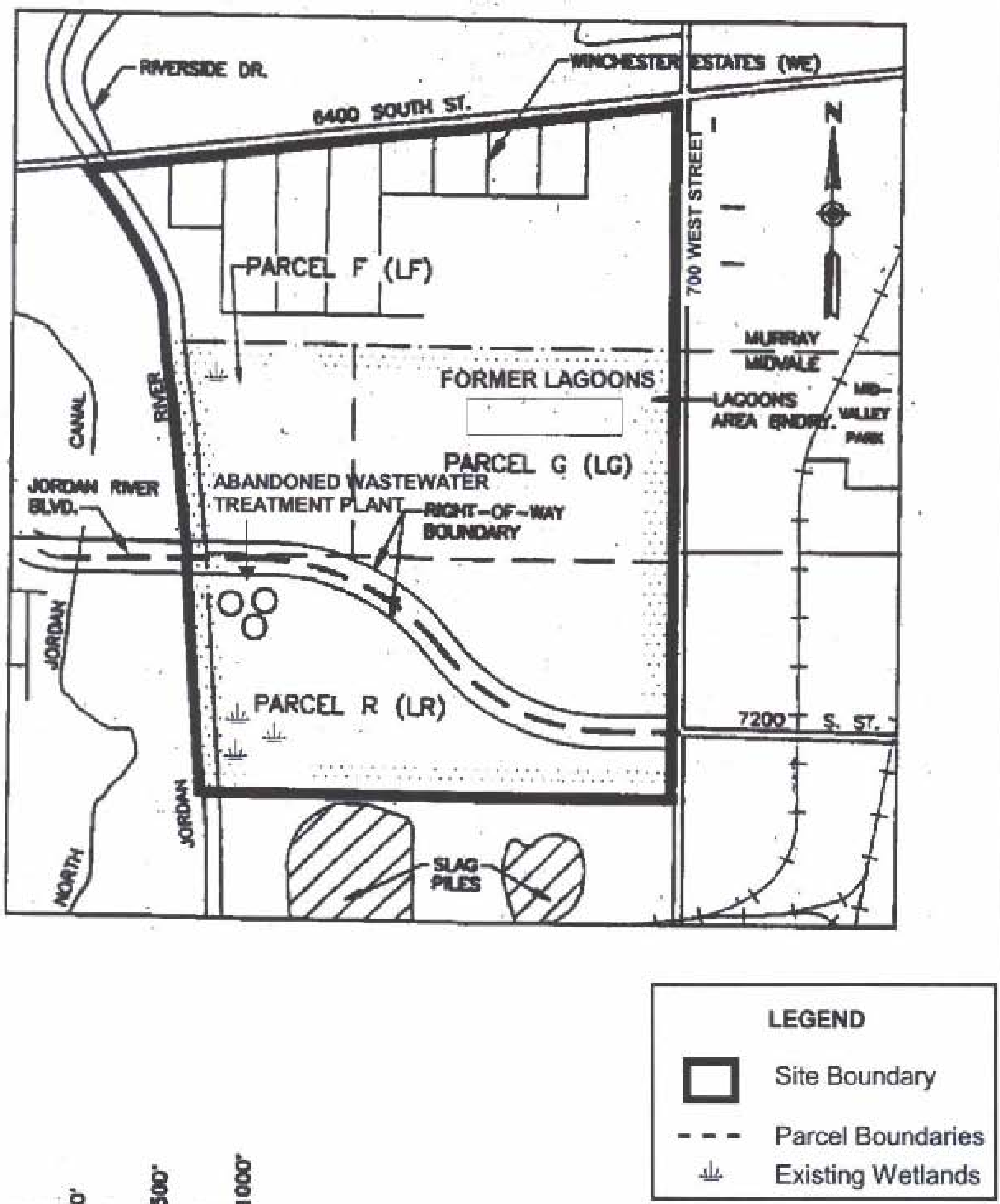


Figure 2

OU1 Parcel Locations

Midvale Slag Superfund Site
Midvale, Utah

CDM

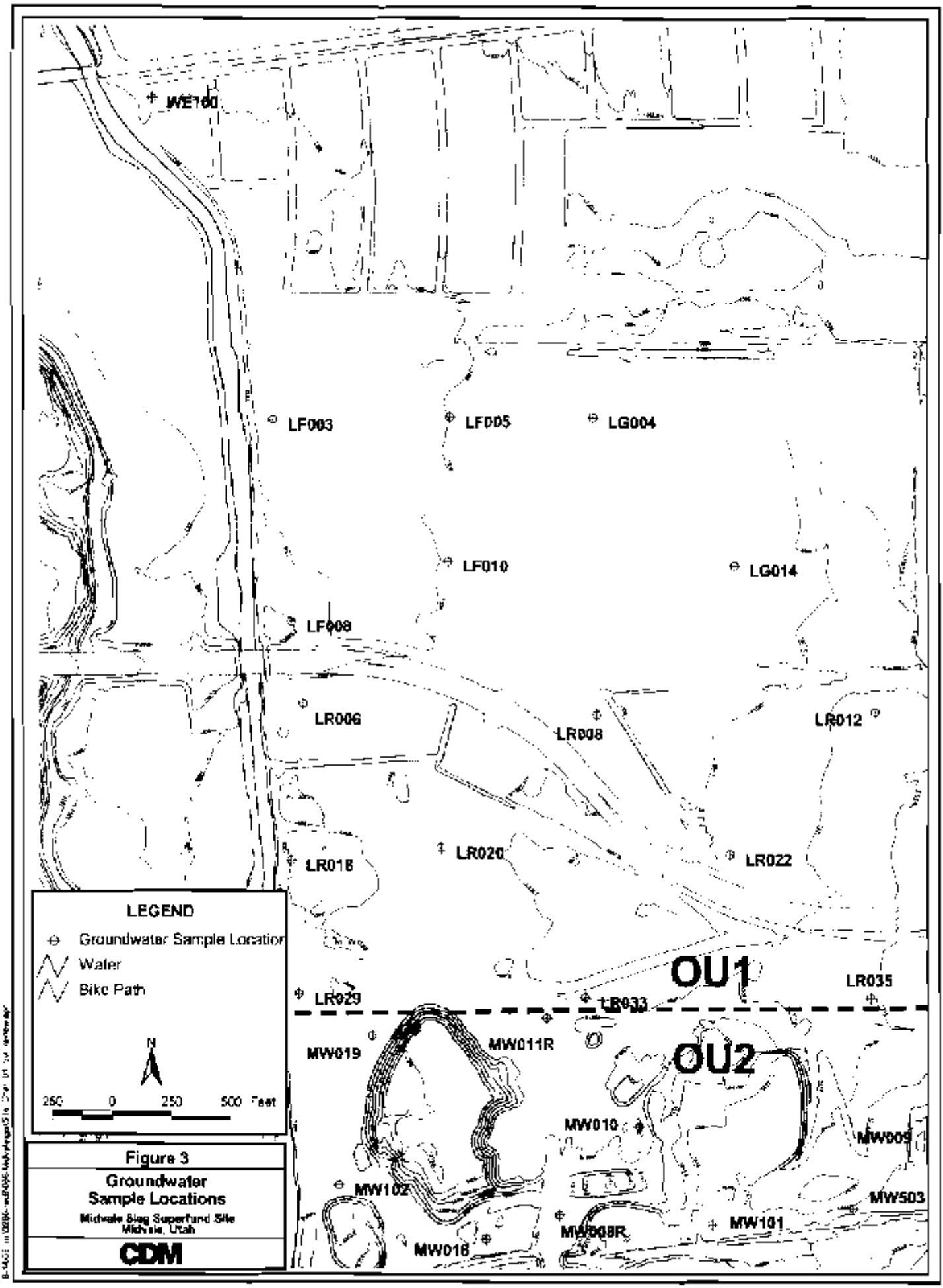
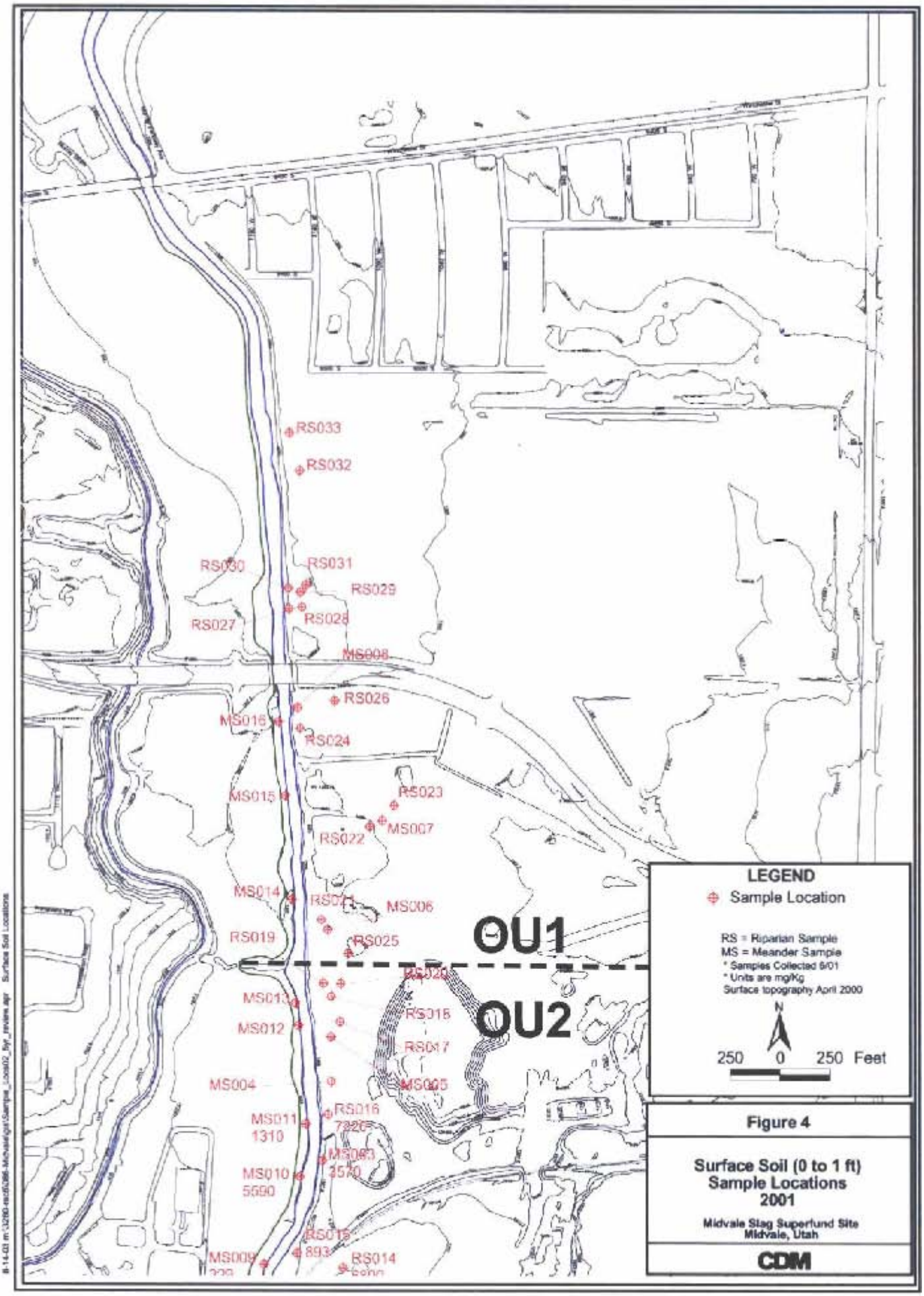


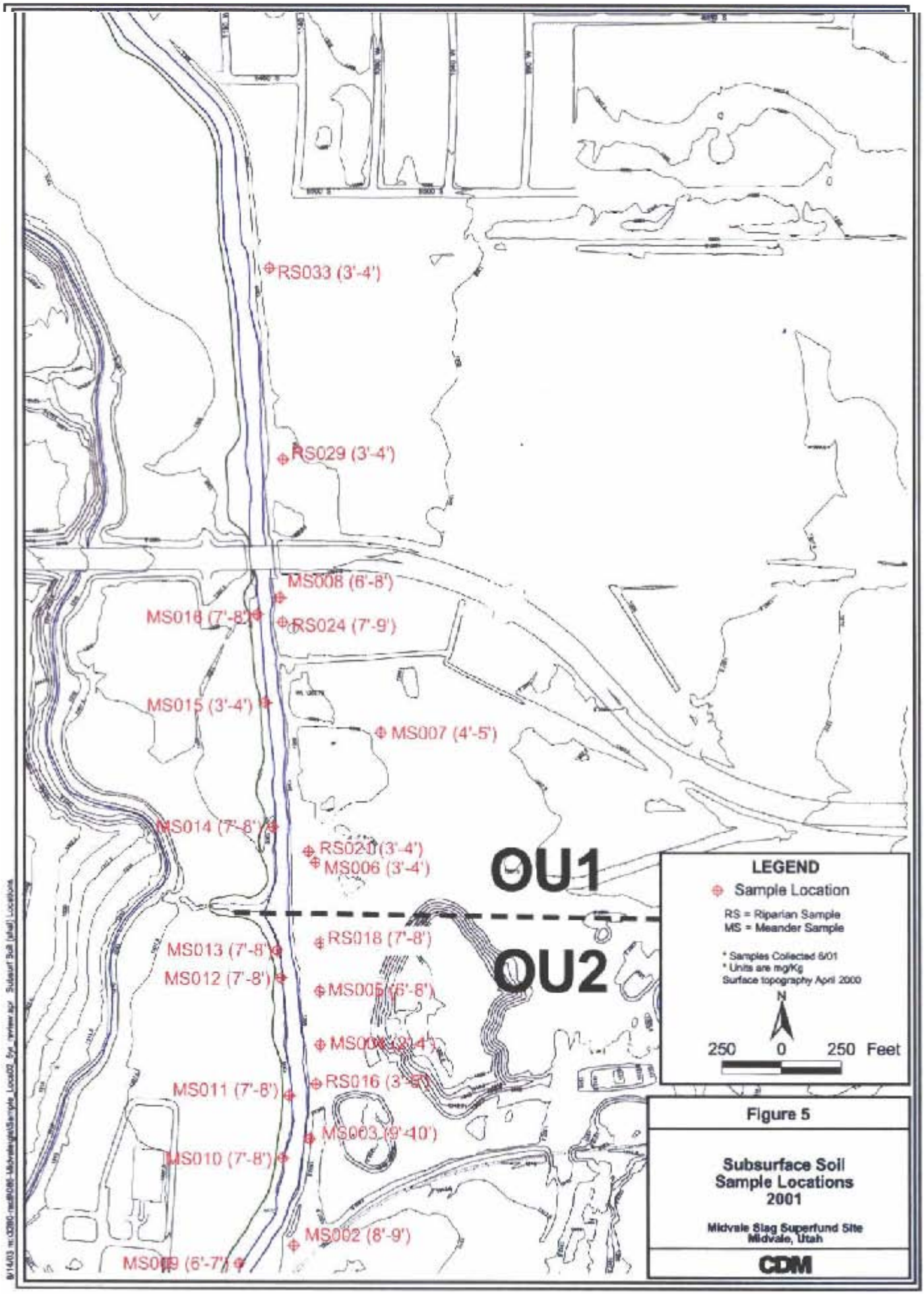
Figure 3

Groundwater Sample Locations

Midvale Slag Superfund Site
Midvale, Utah

CDM


RS033
RS032
RS030
RS031
RS029
RS028
RS027
MS008
RS026
MS016
RS024
MS015
RS023
MS007
RS022
MS014
RS021
MS006
RS019
RS025
OU1
RS020
MS013
RS018
OU2
MS012
RS017
MS004
MS005
RS016
MS011
1310
7320
MS003
MS010
5690
3570
RS015
MS009
893
RS014
LEGEND
Sample Location
RS = Riparian Sample
MS = Meander Sample
* Samples Collected 6/01
* Units are mg/Kg
Surface topography April 2000
N
250 0 250 Feet
Figure 4
Surface Soil (0 to 1 ft)
Sample Locations
2001
Midvale Slag Superfund Site
Midvale, Utah
CDM


RS033 (3'-4')
RS029 (3'-4')
MS008 (6'-8')
MS016 (7'-8')
RS024 (7'-9')
MS015 (3'-4')
MS007 (4'-5')
MS014 (7'-8')
RS021 (3'-4')
MS006 (3'-4')
OU1
OU2
RS018 (7'-8')
MS013 (7'-8')
MS012 (7'-8')
MS005 (6'-8')
MS004 (3'-4')
RS016 (3'-5')
MS011 (7'-8')
MS003 (9'-10')
MS010 (7'-8')
MS002 (8'-9')
MS009 (6'-7')
LEGEND
Sample Location
RS = Riparian Sample
MS = Meander Sample
* Samples Collected 6/01
* Units are mg/Kg
Surface topography April 2000
N
250 0 250 Feet
Figure 5
Subsurface Soil Sample Locations 2001
Midvale Slag Superfund Site
Midvale, Utah
CDM

Attachment 2
Documents Reviewed

Documents Reviewed:

CDM. 2002. *Final Focused Feasibility Study for Groundwater in OU2.* May 2002.

City of Midvale, Utah. *Bingham Junction Zone Ordinance, Chapter 17-7-9.*

State of Utah Department of Environmental Quality. 1998. *Explanation of Significant Differences for the Midvale Slag Operable Unit One Superfund Site Winchester Estates Southeast Parcel.* 1 May 1998.

Sverdrup. 1992. *Baseline Risk assessment Report for the Midvale Slag Superfund Site Operable Unit 1.* November 1992.

_____. 1994. *Baseline Risk assessment Report, Volume 2 of the Engineering Evaluation/Cost Analysis at the Midvale Slag Operable Unit No. 2 (OU2) Superfund Site.* May 1994.

U. S. Department of the Interior Bureau of Reclamation (USBR). 1999. *Remedial Action Report, Midvale Slag Operable Unit 1.* March 1999.

U. S. Environmental Protection Agency (EPA). 1995. *EPA Superfund Record of Decision: Midvale Slag OU1, Midvale, Utah.* 28 April 1995.

_____. 2001. *EPA Comprehensive Five-Year Review Guidance.* June 2001.

_____. 2002. *Midvale Slag Superfund Site OU2 Record of Decision.* October 29, 2002.

URS Consultants. 1992. *LR Parcel Data Summary Report, Midvale Slag Superfund Site Operable Unit No. 1 (OU1),* February 24, 1992.

_____. 1992. *Site Characterization Report for OU1, Midvale Slag Superfund Site Operable Unit No. 1 (OU1),* June 30, 1992.

Winchester Estates Southeast and Sharon Steel Phase 5A Drawings. 1998.

Attachment 3
Additional Midvale Slag OU1
Field Investigation Sample Results

Inorganic Sample Results - Groundwater			LF003	LF008	LR006	LR012	LR018	LR020
			01MS-LF003-GW-N	01MS-LF008-GW-N	01MS-LR006-GW-N	01MS-LR012-GW-N	01MS-LR018-GW-N	01MS-LR020-GW-N
Analyte	Analysis Type	Dilution Factor	6/2/01 - 0845	6/2/01 - 1845	6/2/01 - 1455	6/2/01 - 1715	6/3/01 - 1410	06/3/01 - 1545
			Concentration (ug/L)					
Aluminum	DISSOLVED	1	5 U	27.8 B	5 U	60.7 B	34.1 B	31.2 B
Antimony	DISSOLVED	1	10.2 B	4.4 U	9.4 B	4.9 U	4.9 U	4.9 U
Arsenic	DISSOLVED	1	3.5 U	3.5 U	3.5 U	3.5 U	7.7 B	3.5 U
Barium	DISSOLVED	1	28.2 B	19.6 B	24.7 B	30.3 B	86 B	33.1 B
Beryllium	DISSOLVED	1	1.2 B	0.63 B	0.99 B	0.84 B	0.88 B	0.82 B
Cadmium	DISSOLVED	1	0.48 B	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Calcium	DISSOLVED	1	121000	140000	155000	166000	33100	159000
Chromium	DISSOLVED	1	1.9 B	9.3 B	0.98 B	1.2 B	0.84 B	0.76 B
Cobalt	DISSOLVED	1	0.7 U	5.7 B	0.7 U	0.7 U	0.7 U	0.7 U
Copper	DISSOLVED	1	0.4 U	13 B	0.4 U	6 B	23.7 B	3.9 B
Iron	DISSOLVED	1	19.4 U	188	19.4 U	19.4 U	34.8 B	164
Lead	DISSOLVED	1	1.3 U	4.9 U	1.3 U	3.6	4.8	8.2
Magnesium	DISSOLVED	1	45100	49.5	59100	57800	13400	58500
Manganese	DISSOLVED	1	0.1 U	148000	0.1 U	0.1 U	93.5	0.1 U
Mercury	DISSOLVED	1	0.1 U	7830	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	DISSOLVED	1	0.9 U	1.3 U	0.9 U	2.3 B	1.8 B	0.9 U
Potassium	DISSOLVED	1	6450	52900	7990	14500	9740	19400
Selenium	DISSOLVED	1	8.9	5.6 U	4.6 B	4.4 U	4.4 U	4.4 U
Silver	DISSOLVED	1	0.7 U	0.7 U	0.73 B	0.7 U	0.7 U	0.7 U
Sodium	DISSOLVED	10	127000	455	153000	184000	70300	148000
Thallium	DISSOLVED	1	15.6	2.7 B	20.6	5.6 U	5.6 U	5.6 U
Vanadium	DISSOLVED	1	5.3 B	11.1 B	4.5 B	3.5 B	6.1 B	3.2 B
Zinc	DISSOLVED	1	8.7 B	0.7 U	7.1 B	9.4 B	24.1	77.6
Aluminum	TOTAL	1	34 B	3.5 U	21 B	71.7 B	104 B	41.3 B
Antimony	TOTAL	1	4.9 U	5.6 U	4.9 U	4.9 U	4.9 U	4.9 U
Arsenic	TOTAL	1	3.5 U	26.2 B	3.5 U	3.5 U	11.8	3.5 U
Barium	TOTAL	1	29.9 B	0.12 B	27.9 B	33.4 B	84.1 B	33.8 B
Beryllium	TOTAL	1	2 B	145000	0.1 U	0.14 B	0.36 B	0.3 B
Cadmium	TOTAL	1	0.4 U	16.1 B	0.42 B	0.42 B	0.6 B	0.4 U
Calcium	TOTAL	1	124000	0.4 U	179000	185000	31900	162000
Chromium	TOTAL	1	1.3 B	87.3	0.98 B	0.88 B	0.5 U	1.1 B
Cobalt	TOTAL	1	0.7 U	583	0.7 U	0.7 U	0.7 U	0.7 U
Copper	TOTAL	1	6.2 B	4680	5.6 B	10.6 B	24.4 B	4.1 B
Iron	TOTAL	1	19.4 U	7920	19.4 U	126	98.3 B	19.4 U
Lead	TOTAL	1	1.3 U	4.4 U	1.9 B	1.3 U	4	1.6 B
Magnesium	TOTAL	1	46500	150000	68400	64400	13100	59600
Manganese	TOTAL	1	0.56 B	595	0.1 U	0.56 B	114	65.1
Mercury	TOTAL	1	0.1 U	54700	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	TOTAL	1	0.9 U	4.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Potassium	TOTAL	1	6640	127	8950	15800	9080	19200
Selenium	TOTAL	1	5.5	3.2 B	4.4 U	4.4 U	4.4 U	4.4 U
Silver	TOTAL	1	0.99 B	31.1 B	0.76 B	0.7 U	1.2 B	0.86 B
Sodium	TOTAL	10	131000	2.1 B	166000	201000	68200	152000
Thallium	TOTAL	1	5.6 U	15.4 B	5.6 U	5.6 U	5.6 U	5.6 U
Vanadium	TOTAL	1	2.7 B	0.1 U	5.1 B	2.1 B	5.4 B	2.3 B
Zinc	TOTAL	1	7.5 B	0.1 U	191	13.2 B	26.2	6.8 B

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Inorganic Sample Results - Groundwater			LR029	LR029	LR033	LR035	WE100	WE100
			01MS-LR029-GW-N	01MS-LR029-GW-D	01MS-LR033-GW-N	01MS-LR035-GW-N	01MS-WE100-GW-N	01MS-WE100-GW-D
Analyte	Analysis Type	Dilution Factor	06/03/01 - 1050	06/03/01 - 1100	6/3/01 - 0845	6/1/01 - 1650	6/19/01 - 1825	6/19/01 - 1830
			Concentration (ug/L)					
Aluminum	DISSOLVED	1	6.3 B	39.3 B	36.5 B	33.5 B	39.1 U	71.4 B
Antimony	DISSOLVED	1	5.8 B	4.9 U	4.9 U	4.9 U	1.6 U	1.6 U
Arsenic	DISSOLVED	1	52.4	61	3.5 U	3.5 U	14.8	14.1
Barium	DISSOLVED	1	49.9 B	61.8 B	28.9 B	26.1 B	38.9 B	37.8 B
Beryllium	DISSOLVED	1	0.14 B	1.3 B	1.6 B	0.62 B	0.4 U	0.4 U
Cadmium	DISSOLVED	1	0.51 B	0.4 U	0.4 U	0.4 U	0.34 B	0.56 B
Calcium	DISSOLVED	1	129000	153000	203000	185000	103000	100000
Chromium	DISSOLVED	1	1.2 B	1.2 B	3.1 B	1.3 B	0.7 U	0.7 U
Cobalt	DISSOLVED	1	0.7 U	0.7 U	0.7 U	0.7 U	0.99 B	1.1 B
Copper	DISSOLVED	1	1.5 B	15.6 B	18 B	15.7 B	11.1 B	10.5 B
Iron	DISSOLVED	1	19.4 U	19.4 U	19.4 U	1610	12.4 U	12.4 U
Lead	DISSOLVED	1	1.3 U	12.8	14	1.3 U	0.9 U	0.9 U
Magnesium	DISSOLVED	1	45300	54000	72300	66700	51600	50800
Manganese	DISSOLVED	1	48.5	51.1	3.1 B	493	249	242
Mercury	DISSOLVED	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	DISSOLVED	1	0.9 U	15.3 B	13.7 B	1.9 B	4.5 B	4.7 B
Potassium	DISSOLVED	1	7580	9900	21700	15400	22600	22200
Selenium	DISSOLVED	1	10.2	4.4 U	6.2	4.4 U	2.3 U	2.3 U
Silver	DISSOLVED	1	1.1 B	0.7 U	1 B	0.7 U	0.7 U	0.7 U
Sodium	DISSOLVED	10	139000	173000	187000	215000	184000	182000
Thallium	DISSOLVED	1	10.3	5.6 U	5.6 U	5.6 U	3.5 U	3.5 U
Vanadium	DISSOLVED	1	0.9 U	4.9 B	6.4 B	3 B	3.8 B	3.9 B
Zinc	DISSOLVED	1	9.8 B	499	372	7.7 B	1 U	1 U
Aluminum	TOTAL	1	11.4 B	51.8 B	61 B	56.4 B	132 B	124 B
Antimony	TOTAL	1	4.9 U	4.9 U	4.9 U	4.9 U	1.6 U	1.6 U
Arsenic	TOTAL	1	58.2	56.6	3.5 U	3.5 U	15.9	16
Barium	TOTAL	1	50.9 B	56.7 B	27.6 B	27.2 B	40.5 B	40.3 B
Beryllium	TOTAL	1	2.1 B	0.24 B	0.65 B	0.14 B	0.4 U	0.4 U
Cadmium	TOTAL	1	0.4 U	0.4 U	0.4 U	0.4 U	0.3 U	0.4 B
Calcium	TOTAL	1	125000	137000	191000	195000	104000	105000
Chromium	TOTAL	1	1.4 B	2 B	2.4 B	0.9 B	2.6 B	2.6 B
Cobalt	TOTAL	1	0.7 U	0.7 U	0.7 U	0.7 U	1.2 B	1.5 B
Copper	TOTAL	1	6.2 B	11.4 B	13.2 B	12.5 B	9.1 B	9.6 B
Iron	TOTAL	1	19.4 U	19.4 U	19.4 U	2380	108	121
Lead	TOTAL	1	1.3 U	3.1	5.4	1.3 U	1 B	0.9 U
Magnesium	TOTAL	1	45400	48900	69200	70800	51100	51600
Manganese	TOTAL	1	80.7	83.2	1.9 B	535	254	255
Mercury	TOTAL	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	TOTAL	1	0.9 U	2.2 B	2.1 B	2 B	6.4 B	6.3 B
Potassium	TOTAL	1	7900	8450	20100	16000	22100	22200
Selenium	TOTAL	1	4.4 U	7.4	5.5	4.4 U	4.2 B	2.3 U
Silver	TOTAL	1	0.7 U	1.3 B	0.84 B	0.7 U	0.7 U	0.7 U
Sodium	TOTAL	10	141000	149000	172000	218000	180000	181000
Thallium	TOTAL	1	5.6 U	5.6 U	5.6 U	5.6 U	3.5 U	3.5 U
Vanadium	TOTAL	1	3 B	2.7 B	2.9 B	0.9 U	4.1 B	4.3 B
Zinc	TOTAL	1	4.9 B	18.3 B	30.7	8.3 B	1 U	1 U

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J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Volatile Organic Compound (VOC) Results - Groundwater	LF003 01MS-LF003-GW-N 6/2/01 - 0845	LF003 02MS-LF003-GW-N 1/7/02 - 1525	LF005 02MS-LF005-GW-N 1/7/02 - 1645	LF008 01MS-LF008-GW-N 6/1/01 - 1845	LF008 02MS-LF008-GW-N 1/7/02 - 1245	LF008 02MS-LF008-GW-D 1/7/02 - 1250	LF010 02MS-LF010-GW-N 1/6/02 - 1705
Analyte	***Concentration (ug/L)***						
1,1,1-Trichloroethane	10 U	0.5 U	1.1	10 U	0.5 U	0.5 U	0.54
1,1,2,2-Tetrachloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	10 U	0.5 U	1.4	10 U	0.5 U	0.5 U	0.95
1,1-Dichloroethene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	NA	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
2-Butanone	10 U	5 U	5 U	10 U	5 U	5 U	5 U
2-Hexanone	10 U	5 U	5 U	10 U	5 U	5 U	5 U
4-Methyl-2-pentanone	10 U	5 U	5 U	10 U	5 U	5 U	5 U
Acetone	10 U	5 U	5 U	10 UJ	5 U	5 U	5 U
Benzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	NA	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U
Bromodichloromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Bromoform	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Bromomethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Chloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Chloroform	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Chloromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Cyclohexane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Methyl Acetate	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Methyl tert-Butyl Ether	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Methylcyclohexane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Methylene Chloride	10 JB	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	0.5 U
Styrene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	10 U	0.51	0.5 U	1 J	2.4	2.4	0.49 J
Toluene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Trichloroethene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U
Xylenes (total)	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.5 U

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J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Volatile Organic Compound (VOC) Results - Groundwater	LG004 02MS-LG004-GW-N 1/8/02 - 1029	LG014 02MS-LG014-GW-N 1/8/02 - 1121	LR006 01MS-LR006-GW-N 6/2/01 - 1455	LR006 02MS-LR006-GW-N 1/6/02 - 1520	LR008 02MS-LR008-GW-N 1/8/02 - 1616	LR012 01MS-LR012-GW-N 6/2/01 - 1715	LR012 02MS-LR012-GW-N 1/8/02 - 1304
Analyte	***Concentration (ug/L)***						
1,1,1-Trichloroethane	0.5 U	0.5 U	10 U	0.5 U	1.5	10 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	10 U	0.5 U	0.47 J	10 U	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,2,3-Trichlorobenzene	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA	0.5 U
1,2,4-Trichlorobenzene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,2-Dibromo-3-chloropropane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,2-Dibromoethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,2-Dichlorobenzene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,3-Dichlorobenzene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
1,4-Dichlorobenzene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
2-Butanone	5 U	5 U	10 U	5 U	5 U	10 U	5 U
2-Hexanone	5 U	5 U	10 U	5 U	5 U	10 U	5 U
4-Methyl-2-pentanone	5 U	5 U	10 U	5 U	5 U	10 U	5 U
Acetone	5 U	5 U	10 U	5 U	5 U	16 U	5 U
Benzene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Bromochloromethane	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA	0.5 U
Bromodichloromethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Bromoform	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Bromomethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Carbon Disulfide	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Carbon Tetrachloride	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Chloroethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Chloroform	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Chloromethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
cis-1,2-Dichloroethene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
cis-1,3-Dichloropropene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Cyclohexane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Dichlorodifluoromethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Isopropylbenzene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Methyl Acetate	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Methyl tert-Butyl Ether	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Methylcyclohexane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Methylene Chloride	0.5 U	0.5 U	10 U	0.5 U	0.5 U	17 U	0.5 U
Styrene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Tetrachloroethene	0.5 U	0.5 U	7 J	3.5	0.38 J	10 U	0.5 U
Toluene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Trichloroethene	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Trichlorofluoromethane	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Vinyl Chloride	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U
Xylenes (total)	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U	0.5 U

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Volatile Organic Compound (VOC) Results - Groundwater	LR018 01MS-LR018-GW-N 6/3/01 - 1410	LR018 02MS-LR018-GW-N 1/10/02 - 0923	LR018 02MS-LR018-GW-D 1/10/02 - 0926	LR020 01MS-LR020-GW-N 6/3/01 - 1545	LR020 02MS-LR020-GW-N 1/9/02 - 0932	LR022 02MS-LR022-GW-N 1/8/02 - 1503	LR029 01MS-LR029-GW-N 6/3/01 - 1050
Analyte	***Concentration (ug/L)***						
1,1,1-Trichloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.87	10 U
1,1,2,2-Tetrachloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,1,2-Trichloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,1-Dichloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.38 J	10 U
1,1-Dichloroethene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.47 J	10 U
1,2,3-Trichlorobenzene	NA	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
1,2,4-Trichlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,2-Dibromo-3-chloropropane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,2-Dibromoethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,2-Dichlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,2-Dichloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,2-Dichloropropane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,3-Dichlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
1,4-Dichlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
2-Butanone	10 U	5 U	5 U	10 U	5 U	5 U	10 U
2-Hexanone	10 U	5 U	5 U	10 U	5 U	5 U	10 U
4-Methyl-2-pentanone	10 U	5 U	5 U	10 U	5 U	5 U	10 U
Acetone	10 U	5 U	5 U	10 U	5 U	5 U	10 U
Benzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Bromochloromethane	NA	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
Bromodichloromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Bromoform	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Bromomethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Carbon Disulfide	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Carbon Tetrachloride	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Chlorobenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Chloroethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Chloroform	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Chloromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
cis-1,2-Dichloroethene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
cis-1,3-Dichloropropene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Cyclohexane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Dibromochloromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Dichlorodifluoromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Ethylbenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Isopropylbenzene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Methyl Acetate	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Methyl tert-Butyl Ether	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Methylcyclohexane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Methylene Chloride	12 U	0.5 U	0.5 U	12 U	0.5 U	0.5 U	10 U
Styrene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Tetrachloroethene	10 U	0.5 U	0.5 U	7 J	2.1	0.35 J	15
Toluene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
trans-1,2-Dichloroethene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
trans-1,3-Dichloropropene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Trichloroethene	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Trichlorofluoromethane	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Vinyl Chloride	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U
Xylenes (total)	10 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	10 U

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Volatile Organic Compound (VOC) Results - Groundwater	LR029 01MS-LR029-GW-D 6/3/01 - 1100	LR029 02MS-LR-029-GW-N 1/9/02 - 1045	LR033 01MS-LR033-GW-N 6/3/01 - 0845	LR033 02MS-LR033-GW-N 1/9/02 - 1134	LR035 01MS-LR035-GW-N 6/1/01 - 1650	LR035 02MS-LR035-GW-N 1/9/02 - 1328	WE100 01MS-WE100-GW-N 6/19/01 - 1825
Analyte	***Concentration (ug/L)***						
1,1,1-Trichloroethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,1,2,2-Tetrachloroethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,1,2-Trichloro-1,2,2-trifluoroethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,1,2-Trichloroethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,1-Dichloroethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,1-Dichloroethene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,2,3-Trichlorobenzene	NA	0.5 U	NA	0.5 U	NA	1.4	NA
1,2,4-Trichlorobenzene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,2-Dibromo-3-chloropropane	10 U	0.5 U	10 U	0.5 U	10 U	5 U	10 UJ
1,2-Dibromoethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,2-Dichlorobenzene	10 U	0.5 U	10 U	0.5 U	10 U	0.67	10 UJ
1,2-Dichloroethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,2-Dichloropropane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,3-Dichlorobenzene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
1,4-Dichlorobenzene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
2-Butanone	10 U	5 U	10 U	5 U	10 U	5 U	10 UJ
2-Hexanone	10 U	5 U	10 U	5 U	10 U	0.5 U	10 UJ
4-Methyl-2-pentanone	10 U	5 U	10 U	5 U	10 U	0.5 U	10 UJ
Acetone	10 J	5 U	10 U	5 U	10 UJ	0.5 U	10 UJ
Benzene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Bromochloromethane	NA	0.5 U	NA	0.5 U	NA	0.5 U	NA
Bromodichloromethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Bromoform	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Bromomethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Carbon Disulfide	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Carbon Tetrachloride	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Chlorobenzene	10 U	0.5 U	10 U	0.5 U	10 U	5 U	10 UJ
Chloroethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Chloroform	10 U	0.5 U	10 U	0.5 U	10 U	5 U	10 UJ
Chloromethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
cis-1,2-Dichloroethene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
cis-1,3-Dichloropropene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Cyclohexane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Dibromochloromethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Dichlorodifluoromethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Ethylbenzene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Isopropylbenzene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Methyl Acetate	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Methyl tert-Butyl Ether	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Methylcyclohexane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Methylene Chloride	10 U	0.5 U	11 U	0.5 U	10 UJ	0.5 U	10 UJ
Styrene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Tetrachloroethene	14	9.6	21	22	10 U	0.5 U	10 UJ
Toluene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
trans-1,2-Dichloroethene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
trans-1,3-Dichloropropene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Trichloroethene	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Trichlorofluoromethane	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Vinyl Chloride	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ
Xylenes (total)	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 UJ

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J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Volatile Organic Compound (VOC) Results - Groundwater	WE100 01MS-WE100-GW-D 6/9/01 - 1830	WE100 02MS-WE100-GW-N
Analyte	***Concentration (ug/L)***	
1,1,1-Trichloroethane	10 UJ	0.5 U
1,1,2,2-Tetrachloroethane	10 UJ	0.5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	10 UJ	0.5 U
1,1,2-Trichloroethane	10 UJ	0.5 U
1,1-Dichloroethane	10 UJ	0.5 U
1,1-Dichloroethene	10 UJ	0.5 U
1,2,3-Trichlorobenzene	NA	0.5 U
1,2,4-Trichlorobenzene	10 UJ	0.5 U
1,2-Dibromo-3-chloropropane	10 UJ	0.5 U
1,2-Dibromoethane	10 UJ	0.5 U
1,2-Dichlorobenzene	10 UJ	0.5 U
1,2-Dichloroethane	10 UJ	0.5 U
1,2-Dichloropropane	10 UJ	0.5 U
1,3-Dichlorobenzene	10 UJ	0.5 U
1,4-Dichlorobenzene	10 UJ	0.5 U
2-Butanone	10 UJ	5 U
2-Hexanone	10 UJ	5 U
4-Methyl-2-pentanone	10 UJ	5 U
Acetone	10 UJ	5 U
Benzene	10 UJ	0.5 U
Bromochloromethane	NA	0.5 U
Bromodichloromethane	10 UJ	0.5 U
Bromoform	10 UJ	0.5 U
Bromomethane	10 UJ	0.5 U
Carbon Disulfide	10 UJ	0.5 U
Carbon Tetrachloride	10 UJ	0.5 U
Chlorobenzene	10 UJ	0.5 U
Chloroethane	10 UJ	0.5 U
Chloroform	10 UJ	0.5 U
Chloromethane	10 UJ	0.5 U
cis-1,2-Dichloroethene	10 UJ	0.5 U
cis-1,3-Dichloropropene	10 UJ	0.5 U
Cyclohexane	10 UJ	0.5 U
Dibromochloromethane	10 UJ	0.5 U
Dichlorodifluoromethane	10 UJ	0.5 U
Ethylbenzene	10 UJ	0.5 U
Isopropylbenzene	10 UJ	0.5 U
Methyl Acetate	10 UJ	0.5 U
Methyl tert-Butyl Ether	10 UJ	0.5 U
Methylcyclohexane	10 UJ	0.5 U
Methylene Chloride	10 UJ	0.5 U
Styrene	10 UJ	0.5 U
Tetrachloroethene	10 UJ	0.5 U
Toluene	10 UJ	0.5 U
trans-1,2-Dichloroethene	10 UJ	0.5 U
trans-1,3-Dichloropropene	10 UJ	0.5 U
Trichloroethene	10 UJ	0.5 U
Trichlorofluoromethane	10 UJ	0.5 U
Vinyl Chloride	10 UJ	0.5 U
Xylenes (total)	10 UJ	0.5 U

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Semi Volatile Organic Compound (SVOC) Results - Groundwater	LF003 01MS-LF003-GW-N 6/2/01 - 0845	LF008 01MS-LF008-GW-N 6/2/01 - 1845	LR006 01MS-LR006-GW-N 6/2/01 - 1455	LR012 01MS-LR012-GW-N 6/2/01 - 1715	LR018 01MS-LR018-GW-N 6/3/01 - 1410	LR020 01MS-LR020-GW-N 06/3/01 - 1545	LR029 01MS-LR029-GW-N 06/03/01 - 1050
Analyte	***Concentration (ug/L)***						
1,1'-Biphenyl	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitrophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetophenone	10 U	8 J	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Atrazine	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzaldehyde	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis-(2-Chloroethyl) ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	4 J	250 EJ	10 U	9 J	10 U	10 U	2 J
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Caprolactam	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Results - Groundwater	LF003 01MS-LF003-GW-N 6/2/01 - 0845	LF008 01MS-LF008-GW-N 6/2/01 - 1845	LR006 01MS-LR006-GW-N 6/2/01 - 1455	LR012 01MS-LR012-GW-N 6/2/01 - 1715	LR018 01MS-LR018-GW-N 6/3/01 - 1410	LR020 01MS-LR020-GW-N 06/3/01 - 1545	LR029 01MS-LR029-GW-N 06/03/01 - 1050
Analyte	***Concentration (ug/L)***						
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Results - Groundwater	LR029 01MS-LR029-GW-D 06/03/01 - 1100	LR033 01MS-LR033-GW-N 6/3/01 - 0845	LR035 01MS-LR035-GW-N 6/1/01 - 1650	WE100 01MS-WE100-GW-N 6/19/01 - 1825	WE100 01MS-WE100-GW-D 6/19/01 - 1830
Analyte	***Concentration (ug/L)***				
1,1'-Biphenyl	10 U	10 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	25 U	25 U	25 U	25 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	25 U	25 U	25 U	25 U	25 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25 U	25 U	25 U	25 U	25 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	25 U	25 U	25 U	25 U	25 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenyl ether	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	25 U	25 U	25 U	25 U	25 U
4-Nitrophenol	25 U	25 U	25 U	25 U	25 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U
Acetophenone	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U
Atrazine	10 U	10 U	10 U	10 U	10 U
Benzaldehyde	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U
bis-(2-Chloroethyl) ether	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	3 J	9 J	3 J	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U
Caprolactam	10 U	10 U	10 U	10 U	10 U
Carbazole	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U	10 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U	10 U	10 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Results - Groundwater	LR029 01MS-LR029-GW-D 06/03/01 - 1100	LR033 01MS-LR033-GW-N 6/3/01 - 0845	LR035 01MS-LR035-GW-N 6/1/01 - 1650	WE100 01MS-WE100-GW-N 6/19/01 - 1825	WE100 01MS-WE100-GW-D 6/19/01 - 1830
Analyte	***Concentration (ug/L)***				
Fluoranthene	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25 U	25 U	25 U	25 U	25 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Inorganic Sample Results - Surface Soil	MS006 01MS-MS006-SS-0612-N 5/31/01 - 0848	MS007 01MS-MS007-SS-0309-N 6/2/01 - 1458	MS008 01MS-MS008-SS-0103-N 5/31/01 - 1025	MS008 01MS-MS008-SS-0103-D 5/31/01 - 1030	MS014 01MS-MS014-SS-0312-N 6/2/01 - 1213	MS015 01MS-MS015-SS-0312-N 6/1/01 - 1503
Analyte	***Concentration (mg/kg)***					
Aluminum	8940	10300	3200	3340	5010	4700
Antimony	8 B	2.5 B	1.6 B	1.9 B	2.2 B	1.1 U
Arsenic	341	28	28	28.4	30.4	34.4
Barium	197	167	122	97.4	116	117
Beryllium	0.64 B	0.69 B	0.28 B	0.29 B	0.29 B	0.02 U
Cadmium	12.7	0.74 B	0.96 B	0.91 B	2.5	4.3
Calcium	37100	49200	27200	30600	32900	37500
Chromium	17.1	15.3	10.4	11.1	11.3	10.2
Cobalt	7.5 B	7.5 B	3.4 B	3.2 B	6.2 B	5.4 B
Copper	1050	94.8	142	162	187	158
Iron	17400	12500	8660	10500	11600	9740
Lead	1430	115	270	328	526	448
Magnesium	7510	11300	9730	12500	5990	6270
Manganese	390	207	187	210	293	286
Mercury	0.35	0.06 U	0.18	0.18	0.13	0.06 U
Nickel	16.1	16.1	6.2 B	6.9 B	10.4	9.3
Potassium	3450	5790	1070	1180	2310	2100
Selenium	1 U	1 U	0.88 U	0.89 U	1 U	0.98 U
Silver	5.5	0.16 U	1.3 B	1.3 B	1.4 B	1.6 B
Sodium	422 B	509 B	189 B	196 B	323 B	409 B
Thallium	1.3 U	1.3 U	1.1 U	1.1 U	1.3 U	1.2 U
Vanadium	22.9	22	12.9	14.2	18.9	15.4
Zinc	933	178	462	718	538	694

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Inorganic Sample Results - Surface Soil	MS015 01MS-MS015-SS-0312-D 6/1/01 - 1504	MS016 01MS-MS016-SS-0012-N 6/1/01 - 1424	RS021 01MS-RS021-SS-0012-N 5/31/01 - 0905	RS022 01MS-RS022-SS-0006-N 6/2/01 - 1751	RS023 01MS-RS023-SS-0006-N 6/2/01 - 1746	RS024 01MS-RS024-SS-0103-N 5/31/01 - 1130
Analyte	***Concentration (mg/kg)***					
Aluminum	4890	6490	7990	8960	15600	5040
Antimony	5.2 B	6.1 B	6 B	5.3 B	1.1 U	7.3 B
Arsenic	114	107	93.8	30.9	34.1	87.2
Barium	106	132	223	333	337	375
Beryllium	0.27 B	0.02 U	0.48 B	1.1 B	0.8 B	0.22 B
Cadmium	13.2	6.9	10.8	7.3	0.09 U	12.2
Calcium	32600	43800	29700	64900	48800	34400
Chromium	11.4	65.4	16	20.5	20.9	17.1
Cobalt	5.6 B	6 B	7.8 B	7.5 B	8.9 B	5.3 B
Copper	671	271	653	258	36.5	278
Iron	15300	19100	18600	17500	24400	36800
Lead	2670	467	1230	486	42.6	1370
Magnesium	6770	14700	6950	13800	14600	6110
Manganese	393	1310	361	402	266	1040
Mercury	0.26	0.69	0.53	0.83	0.1 B	0.42
Nickel	9.5	11.8	14.9	17.9	17.5	8 B
Potassium	2000	2140	3280	4720	5660	1770
Selenium	1.7	0.99 U	1 U	2.1	1 U	3
Silver	5.6	2.9	3.6	4.3	0.16 U	2.4
Sodium	604 B	635 B	252 B	1350 B	456 B	364 B
Thallium	1.1 U	1.3 U	1.8 B	2.2 U	1.3 U	1.2 U
Vanadium	18.3	22.4	22.4	18 B	53.1	21.1
Zinc	3200	572	1360	1190	223	9000

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Inorganic Sample Results - Surface Soil	RS025 01MS-RS025-SS-0006-N 6/3/01 - 0815	RS026 01MS-RS026-SS-0006-N 6/3/01 - 0825	RS027 01MS-RS027-SS-0006-N 6/3/01 - 0748	RS028 01MS-RS028-SS-0006-N 6/3/01 - 0738	RS029 01MS-RS029-SS-0312-N 5/31/01 - 1435	RS030 01MS-RS030-SS-0006-N 6/3/01 - 0757
Analyte	***Concentration (mg/kg)***					
Aluminum	7990	8260	6440	6050	5990	4670
Antimony	12.4 B	6 B	4.4 B	7.2 B	76.8	8.5 B
Arsenic	103	60	54.8	83.4	992	95.3
Barium	244	260	251	220	379	526
Beryllium	0.48 B	0.48 B	0.51 B	0.47 B	0.21 B	0.65 B
Cadmium	5.5	3.3	4.6	10.3	75	9
Calcium	36100	35700	49300	43100	72600	37000
Chromium	29.5	22.4	11.3	12.4	9.4	9
Cobalt	6.5 B	6.3 B	5.9 B	5.7 B	5.4 B	6.2 B
Copper	378	443	168	294	2990	1020
Iron	28900	19000	13600	16000	32300	27000
Lead	1080	793	520	850	4540	2360
Magnesium	6570	6940	9760	10000	21600	5240
Manganese	478	309	417	409	518	1670
Mercury	0.23	0.59	0.58	0.23	1.2	0.5
Nickel	12	12.2	12.2	11	11.9	9.5
Potassium	3080	3080	4580	3250	3680	2720
Selenium	2.2	3.2	0.89 U	2.5	3.4	4.2
Silver	0.43 B	2.3	1.8 B	4.6	26.9	7.6
Sodium	523 B	372 B	401 B	358 B	963 B	337 B
Thallium	1.2 U	1.7 B	1.1 U	1.2 U	2.2 B	1.2 U
Vanadium	28.1	25	15.8	17.8	20.3	16.4
Zinc	4460	2030	1150	850	1790	5630

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B - Greater than method det. limit, less than contract req. quant. limit.

Inorganic Sample Results - Surface Soil	RS031 01MS-RS031-SS-0006-N 06/3/01 - 0805	RS032 01MS-RS032-SS-0006-N 06/3/01 - 0816	RS033 01MS-RS033-SS-0312-N 5/31/01 - 1405
Analyte	***Concentration (mg/kg)***		
Aluminum	6270	4660	7540
Antimony	20.1	39.2	30
Arsenic	286	460	658
Barium	310	362	413
Beryllium	0.39 B	0.35 B	0.08 B
Cadmium	24.1	46.4	49.9
Calcium	112000	104000	120000
Chromium	7.2	6.8	11
Cobalt	4 B	3.3 B	4.9 B
Copper	1150	1730	1870
Iron	13200	18500	19500
Lead	1560	2800	2950
Magnesium	34000	23500	40600
Manganese	405	342	486
Mercury	0.75	1.2	0.92
Nickel	8.8	8.5 B	13.2
Potassium	4820	2580	4720
Selenium	0.96 U	1 U	3
Silver	10.1	14	17.5
Sodium	890 B	832 B	1570
Thallium	5.3	1.3 U	5.6
Vanadium	16.5	19.8	26.7
Zinc	565	1020	1190

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Volatile Organic Compound (VOC) Sample Results - Surface Soil	MS006 01MS-MS006-SS-0612-N 5/31/01 - 0848	MS007 01MS-MS007-SS-0309-N 6/2/01 - 1458	MS008 01MS-MS008-SS-0103-N 5/31/01 - 1025	MS008 01MS-MS008-SS-0103-D 5/31/01 - 1030	MS014 01MS-MS014-SS-0312-N 6/2/01 - 1213	MS015 01MS-MS015-SS-0312-N 6/1/01 - 1503
Analyte	***Concentration (mg/kg)***					
1,1,1-Trichloroethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,1,2,2-Tetrachloroethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,1,2-Trichloroethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,1-Dichloroethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,1-Dichloroethene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,2,4-Trichlorobenzene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,2-Dibromo-3-chloropropane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,2-Dibromoethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,2-Dichlorobenzene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,2-Dichloroethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,2-Dichloropropane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,3-Dichlorobenzene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
1,4-Dichlorobenzene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
2-Butanone	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
2-Hexanone	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
4-Methyl-2-pentanone	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Acetone	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Benzene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Bromodichloromethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Bromoform	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Bromomethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Carbon Disulfide	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Carbon Tetrachloride	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Chlorobenzene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Chloroethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Chloroform	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Chloromethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
cis-1,2-Dichloroethene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
cis-1,3-Dichloropropene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Cyclohexane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Dibromochloromethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Dichlorodifluoromethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Ethylbenzene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Isopropylbenzene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Methyl Acetate	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Methyl tert-Butyl Ether	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Methylcyclohexane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Methylene Chloride	0.016 B	0.043 B	0.016 B	0.017 B	0.076 B	0.017 B
Styrene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Tetrachloroethene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Toluene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
trans-1,2-Dichloroethene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
trans-1,3-Dichloropropene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Trichloroethene	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Trichlorofluoromethane	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Vinyl Chloride	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U
Xylenes (total)	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U	0.013 U

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Volatile Organic Compound (VOC) Sample Results - Surface Soil	MS015 01MS-MS015-SS-0312-D 6/1/01 - 1504	MS016 01MS-MS016-SS-0012-N 6/1/01 - 1424	RS021 01MS-RS021-SS-0012-N 5/31/01 - 0905	RS022 01MS-RS022-SS-0006-N 6/2/01 - 1751	RS023 01MS-RS023-SS-0006-N 6/2/01 - 1746	RS024 01MS-RS024-SS-0103-N 5/31/01 - 1130
Analyte	***Concentration (mg/kg)***					
1,1,1-Trichloroethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,1,2,2-Tetrachloroethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,1,2-Trichloroethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,1-Dichloroethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,1-Dichloroethene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,2,4-Trichlorobenzene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,2-Dibromo-3-chloropropane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,2-Dibromoethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,2-Dichlorobenzene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,2-Dichloroethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,2-Dichloropropane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,3-Dichlorobenzene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
1,4-Dichlorobenzene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
2-Butanone	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
2-Hexanone	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
4-Methyl-2-pentanone	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Acetone	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Benzene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Bromodichloromethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Bromoform	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Bromomethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Carbon Disulfide	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Carbon Tetrachloride	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Chlorobenzene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Chloroethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Chloroform	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Chloromethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
cis-1,2-Dichloroethene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
cis-1,3-Dichloropropene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Cyclohexane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Dibromochloromethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Dichlorodifluoromethane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Ethylbenzene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Isopropylbenzene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Methyl Acetate	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Methyl tert-Butyl Ether	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Methylcyclohexane	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Methylene Chloride	0.04 B	0.016 B	0.019 B	0.033 B	0.02 B	0.015 B
Styrene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Tetrachloroethene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Toluene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
trans-1,2-Dichloroethene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
trans-1,3-Dichloropropene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Trichloroethene	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Trichlorofluoromethane	0.01 U	0.012 U	0.002 J	0.02 U	0.011 U	0.011 U
Vinyl Chloride	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U
Xylenes (total)	0.01 U	0.012 U	0.013 U	0.02 U	0.011 U	0.011 U

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Volatile Organic Compound (VOC) Sample Results - Surface Soil	RS025 01MS-RS025-SS-0006-N 6/3/01 - 0815	RS026 01MS-RS026-SS-0006-N 6/3/01 - 0825	RS027 01MS-RS027-SS-0006-N 6/3/01 - 0748	RS028 01MS-RS028-SS-0006-N 6/3/01 - 0738	RS029 01MS-RS029-SS-0312-N 5/31/01 - 1435	RS030 01MS-RS030-SS-0006-N 6/3/01 - 0757
Analyte	***Concentration (mg/kg)***					
1,1,1-Trichloroethane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
1,1,2,2-Tetrachloroethane	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
1,1,2-Trichloroethane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
1,1-Dichloroethane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
1,1-Dichloroethene	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
1,2,4-Trichlorobenzene	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
1,2-Dibromo-3-chloropropane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
1,2-Dibromoethane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
1,2-Dichlorobenzene	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
1,2-Dichloroethane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
1,2-Dichloropropane	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
1,3-Dichlorobenzene	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
1,4-Dichlorobenzene	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
2-Butanone	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
2-Hexanone	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
4-Methyl-2-pentanone	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Acetone	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Benzene	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Bromodichloromethane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Bromoform	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Bromomethane	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Carbon Disulfide	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Carbon Tetrachloride	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Chlorobenzene	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Chloroethane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Chloroform	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Chloromethane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
cis-1,2-Dichloroethene	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
cis-1,3-Dichloropropene	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Cyclohexane	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Dibromochloromethane	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Dichlorodifluoromethane	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Ethylbenzene	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Isopropylbenzene	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Methyl Acetate	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Methyl tert-Butyl Ether	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Methylcyclohexane	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Methylene Chloride	0.044 B	0.011 U	0.029 B	0.016 B	0.023 B	0.045 B
Styrene	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Tetrachloroethene	0.01 U	0.011 U	0.012 U	0.003 J	0.011 U	0.015 U
Toluene	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
trans-1,2-Dichloroethene	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
trans-1,3-Dichloropropene	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Trichloroethene	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Trichlorofluoromethane	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U
Vinyl Chloride	0.01 U	0.01 U	0.012 U	0.012 U	0.011 U	0.015 U
Xylenes (total)	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.015 U

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Volatile Organic Compound (VOC) Sample Results - Surface Soil	RS031 01MS-RS031-SS-0006-N 06/3/01 - 0805	RS032 01MS-RS032-SS-0006-N 06/3/01 - 0816	RS033 01MS-RS033-SS-0312-N 5/31/01 - 1405
Analyte	***Concentration (mg/kg)***		
1,1,1-Trichloroethane	0.011 U	0.015 U	0.013 U
1,1,2,2-Tetrachloroethane	0.011 U	0.015 U	0.012 U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.011 U	0.015 U	0.013 U
1,1,2-Trichloroethane	0.011 U	0.015 U	0.012 U
1,1-Dichloroethane	0.011 U	0.015 U	0.013 U
1,1-Dichloroethene	0.011 U	0.015 U	13 J
1,2,4-Trichlorobenzene	0.011 U	0.015 U	0.012 U
1,2-Dibromo-3-chloropropane	0.011 U	0.015 U	0.012 U
1,2-Dibromoethane	0.011 U	0.015 U	0.012 U
1,2-Dichlorobenzene	0.011 U	0.015 U	0.012 U
1,2-Dichloroethane	0.011 U	0.015 U	0.013 U
1,2-Dichloropropane	0.011 U	0.015 U	0.012 U
1,3-Dichlorobenzene	0.011 U	0.015 U	0.012 U
1,4-Dichlorobenzene	0.011 U	0.015 U	0.012 U
2-Butanone	0.011 U	0.015 U	0.013 U
2-Hexanone	0.011 U	0.015 U	0.012 U
4-Methyl-2-pentanone	0.011 U	0.015 U	0.012 U
Acetone	0.011 U	0.015 J	0.013 U
Benzene	0.011 U	0.015 U	0.013 U
Bromodichloromethane	0.011 U	0.015 U	0.012 U
Bromoform	0.011 U	0.015 U	0.012 U
Bromomethane	0.011 U	0.015 U	0.013 U
Carbon Disulfide	0.011 U	0.015 U	0.013 U
Carbon Tetrachloride	0.011 U	0.015 U	0.013 U
Chlorobenzene	0.011 U	0.015 U	0.012 U
Chloroethane	0.011 U	0.015 U	0.013 U
Chloroform	0.011 U	0.015 U	0.013 U
Chloromethane	0.011 U	0.015 U	0.013 U
cis-1,2-Dichloroethene	0.011 U	0.015 U	0.013 U
cis-1,3-Dichloropropene	0.011 U	0.015 U	0.012 U
Cyclohexane	0.011 U	0.015 U	0.013 U
Dibromochloromethane	0.011 U	0.015 U	0.012 U
Dichlorodifluoromethane	0.011 U	0.015 U	0.013 U
Ethylbenzene	0.011 U	0.015 U	0.012 U
Isopropylbenzene	0.011 U	0.015 U	0.012 U
Methyl Acetate	0.011 U	0.015 U	0.013 U
Methyl tert-Butyl Ether	0.011 U	0.015 U	0.013 U
Methylcyclohexane	0.011 U	0.015 U	0.012 U
Methylene Chloride	0.03 B	0.039 B	0.019 B
Styrene	0.011 U	0.015 U	0.012 U
Tetrachloroethene	0.011 U	0.015 U	0.012 U
Toluene	0.011 U	0.015 U	0.012 U
trans-1,2-Dichloroethene	0.011 U	0.015 U	0.013 U
trans-1,3-Dichloropropene	0.011 U	0.015 U	0.012 U
Trichloroethene	0.011 U	0.015 U	0.012 U
Trichlorofluoromethane	0.011 U	0.015 U	0.013 U
Vinyl Chloride	0.011 U	0.015 U	0.013 U
Xylenes (total)	0.011 U	0.015 U	0.012 U

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Semi Volatile Organic Compound (SVOC) Sample Results - Surface Soil	MS006 01MS-MS006-SS-0612-N 5/31/01 - 0848 DF=1	MS007 01MS-MS007-SS-0309-N 6/2/01 - 1458 DF=1	MS008 01MS-MS008-SS-0103-N 5/31/01 - 1025 DF=5	MS008 01MS-MS008-SS-0103-D 5/31/01 - 1030 DF=5	MS014 01MS-MS014-SS-0312-N 6/2/01 - 1213 DF=1	MS015 01MS-MS015-SS-0312-N 6/1/01 - 1503 DF=1
Analyte	***Concentration (mg/kg)***					
1,1'-Biphenyl	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2,2'-oxybis(1-Chloropropane)	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2,4,5-Trichlorophenol	0.99 U	1 U	4.3 U	4.3 U	1.3 U	0.84 U
2,4,6-Trichlorophenol	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2,4-Dichlorophenol	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2,4-Dimethylphenol	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2,4-Dinitrophenol	0.99 U	1 U	4.3 U	4.3 U	1.3 U	0.84 U
2,4-Dinitrotoluene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2,6-Dinitrotoluene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2-Chloronaphthalene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2-Chlorophenol	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2-Methylnaphthalene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2-Methylphenol	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
2-Nitroaniline	0.99 U	1 U	4.3 U	4.3 U	1.3 U	0.84 U
2-Nitrophenol	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
3,3'-Dichlorobenzidine	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
3-Nitroaniline	0.99 U	1 U	4.3 U	4.3 U	1.3 U	0.84 U
4,6-Dinitro-2-methylphenol	0.99 U	1 U	4.3 U	4.3 U	1.3 U	0.84 U
4-Bromophenyl-phenylether	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
4-Chloro-3-methylphenol	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
4-Chloroaniline	0.12 J	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
4-Chlorophenyl-phenyl ether	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
4-Methylphenol	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
4-Nitroaniline	0.99 U	1 U	4.3 U	4.3 U	1.3 U	0.84 U
4-Nitrophenol	0.99 U	1 U	4.3 U	4.3 U	1.3 U	0.84 U
Acenaphthene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Acenaphthylene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Acetophenone	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Anthracene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Atrazine	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Benzaldehyde	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Benzo(a)anthracene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Benzo(a)pyrene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Benzo(b)fluoranthene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Benzo(g,h,i)perylene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Benzo(k)fluoranthene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
bis(2-Chloroethoxy)methane	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
bis-(2-Chloroethyl) ether	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
bis(2-Ethylhexyl)phthalate	0.4 JB	0.14 J	1.7 U	1.7 U	0.21 J	0.34 JB
Butylbenzylphthalate	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Caprolactam	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Carbazole	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Chrysene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Dibenzo(a,h)anthracene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Dibenzofuran	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Diethylphthalate	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Dimethylphthalate	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Di-n-butylphthalate	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Di-n-octylphthalate	0.13 J	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Sample Results - Surface Soil	MS006 01MS-MS006-SS-0612-N 5/31/01 - 0848 DF=1	MS007 01MS-MS007-SS-0309-N 6/2/01 - 1458 DF=1	MS008 01MS-MS008-SS-0103-N 5/31/01 - 1025 DF=5	MS008 01MS-MS008-SS-0103-D 5/31/01 - 1030 DF=5	MS014 01MS-MS014-SS-0312-N 6/2/01 - 1213 DF=1	MS015 01MS-MS015-SS-0312-N 6/1/01 - 1503 DF=1
Analyte	***Concentration (mg/kg)***					
Fluoranthene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Fluorene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Hexachlorobenzene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Hexachlorobutadiene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Hexachlorocyclopentadiene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Hexachloroethane	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Indeno(1,2,3-cd)pyrene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Isophorone	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Naphthalene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Nitrobenzene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
N-Nitroso-di-n-propylamine	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
N-Nitrosodiphenylamine	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Pentachlorophenol	0.99 U	1 U	4.3 U	4.3 U	1.3 U	0.84 U
Phenanthrene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Phenol	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U
Pyrene	0.4 U	0.41 U	1.7 U	1.7 U	0.51 U	0.34 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Sample Results - Surface Soil	MS015 01MS-MS015-SS-0312-D 6/1/01 - 1504 DF=1	MS016 01MS-MS016-SS-0012-N 6/1/01 - 1424 DF=1	RS021 01MS-RS021-SS-0012-N 5/31/01 - 0905 DF=1	RS022 01MS-RS022-SS-0006-N 6/2/01 - 1751 DF=2	RS023 01MS-RS023-SS-0006-N 6/2/01 - 1746 DF=1	RS024 01MS-RS024-SS-0103-N 5/31/01 - 1130 DF=10
Analyte	***Concentration (mg/kg)***					
1,1'-Biphenyl	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2,2'-oxybis(1-Chloropropane)	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2,4,5-Trichlorophenol	0.92 U	0.91 U	2.1 U	1.4 U	0.93 U	8.9 U
2,4,6-Trichlorophenol	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2,4-Dichlorophenol	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2,4-Dimethylphenol	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2,4-Dinitrophenol	0.92 U	0.91 U	2.1 U	1.4 U	0.93 U	8.9 U
2,4-Dinitrotoluene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2,6-Dinitrotoluene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2-Chloronaphthalene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2-Chlorophenol	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2-Methylnaphthalene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2-Methylphenol	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
2-Nitroaniline	0.92 U	0.91 U	2.1 U	1.4 U	0.93 U	8.9 U
2-Nitrophenol	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
3,3'-Dichlorobenzidine	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
3-Nitroaniline	0.92 U	0.91 U	2.1 U	1.4 U	0.93 U	8.9 U
4,6-Dinitro-2-methylphenol	0.92 U	0.91 U	2.1 U	1.4 U	0.93 U	8.9 U
4-Bromophenyl-phenylether	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
4-Chloro-3-methylphenol	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
4-Chloroaniline	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
4-Chlorophenyl-phenyl ether	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
4-Methylphenol	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
4-Nitroaniline	0.92 U	0.91 U	2.1 U	1.4 U	0.93 U	8.9 U
4-Nitrophenol	0.92 U	0.91 U	2.1 U	1.4 U	0.93 U	8.9 U
Acenaphthene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Acenaphthylene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Acetophenone	0.37 U	0.37 U	0.84 U	0.35 J	0.37 U	3.6 U
Anthracene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Atrazine	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Benzaldehyde	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Benzo(a)anthracene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Benzo(a)pyrene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Benzo(b)fluoranthene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Benzo(g,h,i)perylene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Benzo(k)fluoranthene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
bis(2-Chloroethoxy)methane	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
bis-(2-Chloroethyl) ether	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
bis(2-Ethylhexyl)phthalate	0.37 JB	0.37 JB	0.84 JB	0.2 J	0.11 J	3.6 U
Butylbenzylphthalate	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Caprolactam	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Carbazole	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Chrysene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Dibenzo(a,h)anthracene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Dibenzofuran	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Diethylphthalate	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Dimethylphthalate	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Di-n-butylphthalate	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Di-n-octylphthalate	0.37 U	0.37 U	0.84 U	0.16 J	0.37 U	3.6 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Sample Results - Surface Soil	MS015 01MS-MS015-SS-0312-D 6/1/01 - 1504 DF=1	MS016 01MS-MS016-SS-0012-N 6/1/01 - 1424 DF=1	RS021 01MS-RS021-SS-0012-N 5/31/01 - 0905 DF=1	RS022 01MS-RS022-SS-0006-N 6/2/01 - 1751 DF=2	RS023 01MS-RS023-SS-0006-N 6/2/01 - 1746 DF=1	RS024 01MS-RS024-SS-0103-N 5/31/01 - 1130 DF=10
Analyte	***Concentration (mg/kg)***					
Fluoranthene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Fluorene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Hexachlorobenzene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Hexachlorobutadiene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Hexachlorocyclopentadiene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Hexachloroethane	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Indeno(1,2,3-cd)pyrene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Isophorone	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Naphthalene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Nitrobenzene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
N-Nitroso-di-n-propylamine	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
N-Nitrosodiphenylamine	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Pentachlorophenol	0.92 U	0.91 U	2.1 U	1.4 U	0.93 U	8.9 U
Phenanthrene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Phenol	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U
Pyrene	0.37 U	0.37 U	0.84 U	0.56 U	0.37 U	3.6 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Sample Results - Surface Soil	RS025 01MS-RS025-SS-0006-N 6/3/01 - 0815 DF=1	RS026 01MS-RS026-SS-0006-N 6/3/01 - 0825 DF=1	RS027 01MS-RS027-SS-0006-N 6/3/01 - 0748 DF=5	RS028 01MS-RS028-SS-0006-N 6/3/01 - 0738 DF=1-	RS029 01MS-RS029-SS-0312-N 5/31/01 - 1435 DF=1	RS030 01MS-RS030-SS-0006-N 6/3/01 - 0757 DF=2
Analyte	***Concentration (mg/kg)***					
1,1'-Biphenyl	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2,2'-oxybis(1-Chloropropane)	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2,4,5-Trichlorophenol	0.88 U	0.86 U	4.3 U	8.8 U	0.92 U	1.7 U
2,4,6-Trichlorophenol	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2,4-Dichlorophenol	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2,4-Dimethylphenol	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2,4-Dinitrophenol	0.88 U	0.86 U	4.3 U	8.8 U	0.92 U	1.7 U
2,4-Dinitrotoluene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2,6-Dinitrotoluene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2-Chloronaphthalene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2-Chlorophenol	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2-Methylnaphthalene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2-Methylphenol	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
2-Nitroaniline	0.88 U	0.86 U	4.3 U	8.8 U	0.92 U	1.7 U
2-Nitrophenol	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
3,3'-Dichlorobenzidine	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
3-Nitroaniline	0.88 U	0.86 U	4.3 U	8.8 U	0.92 U	1.7 U
4,6-Dinitro-2-methylphenol	0.88 U	0.86 U	4.3 U	8.8 U	0.92 U	1.7 U
4-Bromophenyl-phenylether	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
4-Chloro-3-methylphenol	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
4-Chloroaniline	0.038 J	0.095 J	1.7 U	3.5 U	0.37 U	0.69 U
4-Chlorophenyl-phenyl ether	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
4-Methylphenol	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
4-Nitroaniline	0.88 U	0.86 U	4.3 U	8.8 U	0.92 U	1.7 U
4-Nitrophenol	0.88 U	0.86 U	4.3 U	8.8 U	0.92 U	1.7 U
Acenaphthene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Acenaphthylene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Acetophenone	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Anthracene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Atrazine	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Benzaldehyde	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Benzo(a)anthracene	0.35 U	0.34 U	0.19 J	3.5 U	0.37 U	0.69 U
Benzo(a)pyrene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Benzo(b)fluoranthene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Benzo(g,h,i)perylene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Benzo(k)fluoranthene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
bis(2-Chloroethoxy)methane	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
bis-(2-Chloroethyl) ether	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
bis(2-Ethylhexyl)phthalate	0.18 J	0.085 J	1.7 U	3.5 U	0.068 J	0.69 U
Butylbenzylphthalate	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Caprolactam	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Carbazole	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Chrysene	0.35 U	0.34 U	0.24 J	3.5 U	0.37 U	0.69 U
Dibenzo(a,h)anthracene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Dibenzofuran	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Diethylphthalate	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Dimethylphthalate	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Di-n-butylphthalate	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Di-n-octylphthalate	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Sample Results - Surface Soil	RS025 01MS-RS025-SS-0006-N 6/3/01 - 0815 DF=1	RS026 01MS-RS026-SS-0006-N 6/3/01 - 0825 DF=1	RS027 01MS-RS027-SS-0006-N 6/3/01 - 0748 DF=5	RS028 01MS-RS028-SS-0006-N 6/3/01 - 0738 DF=1-	RS029 01MS-RS029-SS-0312-N 5/31/01 - 1435 DF=1	RS030 01MS-RS030-SS-0006-N 6/3/01 - 0757 DF=2
Analyte	***Concentration (mg/kg)***					
Fluoranthene	0.35 U	0.34 U	0.28 J	3.5 U	0.37 U	0.69 U
Fluorene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Hexachlorobenzene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Hexachlorobutadiene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Hexachlorocyclopentadiene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Hexachloroethane	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Indeno(1,2,3-cd)pyrene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Isophorone	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Naphthalene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Nitrobenzene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
N-Nitroso-di-n-propylamine	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
N-Nitrosodiphenylamine	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Pentachlorophenol	0.88 U	0.86 U	4.3 U	8.8 U	0.92 U	1.7 U
Phenanthrene	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Phenol	0.35 U	0.34 U	1.7 U	3.5 U	0.37 U	0.69 U
Pyrene	0.35 U	0.34 U	0.3 J	3.5 U	0.37 U	0.69 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Sample Results - Surface Soil	RS031 01MS-RS031-SS-0006-N 06/3/01 - 0805 DF=1	RS032 01MS-RS032-SS-0006-N 06/3/01 - 0816 DF=5	RS033 01MS-RS033-SS-0312-N 5/31/01 - 1405 DF=1
Analyte	***Concentration (mg/kg)***		
1,1'-Biphenyl	0.36 U	2.5 U	0.39 U
2,2'-oxybis(1-Chloropropane)	0.36 U	2.5 U	0.39 U
2,4,5-Trichlorophenol	0.9 U	6.2 U	0.97 U
2,4,6-Trichlorophenol	0.36 U	2.5 U	0.39 U
2,4-Dichlorophenol	0.36 U	2.5 U	0.39 U
2,4-Dimethylphenol	0.36 U	2.5 U	0.39 U
2,4-Dinitrophenol	0.9 U	6.2 U	0.97 U
2,4-Dinitrotoluene	0.36 U	2.5 U	0.39 U
2,6-Dinitrotoluene	0.36 U	2.5 U	0.39 U
2-Chloronaphthalene	0.36 U	2.5 U	0.39 U
2-Chlorophenol	0.36 U	2.5 U	0.39 U
2-Methylnaphthalene	0.36 U	2.5 U	0.39 U
2-Methylphenol	0.36 U	2.5 U	0.39 U
2-Nitroaniline	0.9 U	6.2 U	0.97 U
2-Nitrophenol	0.36 U	2.5 U	0.39 U
3,3'-Dichlorobenzidine	0.36 U	2.5 U	0.39 U
3-Nitroaniline	0.9 U	6.2 U	0.97 U
4,6-Dinitro-2-methylphenol	0.9 U	6.2 U	0.97 U
4-Bromophenyl-phenylether	0.36 U	2.5 U	0.39 U
4-Chloro-3-methylphenol	0.36 U	2.5 U	0.39 U
4-Chloroaniline	0.36 U	2.5 U	0.39 U
4-Chlorophenyl-phenyl ether	0.36 U	2.5 U	0.39 U
4-Methylphenol	0.36 U	2.5 U	0.39 U
4-Nitroaniline	0.9 U	6.2 U	0.97 U
4-Nitrophenol	0.9 U	6.2 U	0.97 U
Acenaphthene	0.36 U	2.5 U	0.39 U
Acenaphthylene	0.36 U	2.5 U	0.39 U
Acetophenone	0.36 U	2.5 U	0.39 U
Anthracene	0.36 U	2.5 U	0.39 U
Atrazine	0.36 U	2.5 U	0.39 U
Benzaldehyde	0.36 U	2.5 U	0.39 U
Benzo(a)anthracene	0.36 U	2.5 U	0.39 U
Benzo(a)pyrene	0.36 U	2.5 U	0.39 U
Benzo(b)fluoranthene	0.36 U	2.5 U	0.39 U
Benzo(g,h,i)perylene	0.36 U	2.5 U	0.39 U
Benzo(k)fluoranthene	0.36 U	2.5 U	0.39 U
bis(2-Chloroethoxy)methane	0.36 U	2.5 U	0.39 U
bis-(2-Chloroethyl) ether	0.36 U	2.5 U	0.39 U
bis(2-Ethylhexyl)phthalate	0.36 JB	0.32 J	0.1 J
Butylbenzylphthalate	0.36 U	2.5 U	0.39 U
Caprolactam	0.36 U	2.5 U	0.39 U
Carbazole	0.36 U	2.5 U	0.39 U
Chrysene	0.36 U	2.5 U	0.39 U
Dibenzo(a,h)anthracene	0.36 U	2.5 U	0.39 U
Dibenzofuran	0.36 U	2.5 U	0.39 U
Diethylphthalate	0.36 U	2.5 U	0.39 U
Dimethylphthalate	0.36 U	2.5 U	0.39 U
Di-n-butylphthalate	0.36 U	2.5 U	0.39 U
Di-n-octylphthalate	0.36 U	2.5 U	0.39 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Sample Results - Surface Soil	RS031 01MS-RS031-SS-0006-N 06/3/01 - 0805 DF=1	RS032 01MS-RS032-SS-0006-N 06/3/01 - 0816 DF=5	RS033 01MS-RS033-SS-0312-N 5/31/01 - 1405 DF=1
Analyte	***Concentration (mg/kg)***		
Fluoranthene	0.36 U	2.5 U	0.39 U
Fluorene	0.36 U	2.5 U	0.39 U
Hexachlorobenzene	0.36 U	2.5 U	0.39 U
Hexachlorobutadiene	0.36 U	2.5 U	0.39 U
Hexachlorocyclopentadiene	0.36 U	2.5 U	0.39 U
Hexachloroethane	0.36 U	2.5 U	0.39 U
Indeno(1,2,3-cd)pyrene	0.36 U	2.5 U	0.39 U
Isophorone	0.36 U	2.5 U	0.39 U
Naphthalene	0.36 U	2.5 U	0.39 U
Nitrobenzene	0.36 U	2.5 U	0.39 U
N-Nitroso-di-n-propylamine	0.36 U	2.5 U	0.39 U
N-Nitrosodiphenylamine	0.36 U	2.5 U	0.39 U
Pentachlorophenol	0.9 U	6.2 U	0.97 U
Phenanthrene	0.36 U	2.5 U	0.39 U
Phenol	0.36 U	2.5 U	0.39 U
Pyrene	0.36 U	2.5 U	0.39 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Inorganic Sample Results - Subsurface Soil	MS006 01MS-MS006-SB-0304-N 5/31/01 - 0848	MS007 01MS-MS007-SB-0405-N 6/2/01 - 1512	MS008 01MS-MS008-SB-0608-N 5/31/01 - 1040	MS014 01MS-MS014-SB-0708-N 6/2/01 - 1358	MS015 01MS-MS015-SB-0304-N 6/1/01 - 1505	MS015 01MS-MS015-SB-0708-N 6/1/01 - 1507
Analyte	***Concentration (mg/kg)***					
Aluminum	5710	1280	4780	1750	3700	1180
Antimony	12.1 B	1.1 U	1.1 U	1.1 U	8.3 B	1.1 U
Arsenic	196	0.93 B	53.2	11.1	122	18.1
Barium	118	37.4 B	98.7	40.2 B	121	19.8 B
Beryllium	0.3 B	0.02 U	0.19 B	0.05 B	0.19 B	0.02 U
Cadmium	19.6	0.09 U	0.09 U	1.9	9	0.4 B
Calcium	14400	1920	11900	5190	5720	2270
Chromium	16.6	5.1	9.4	6	11	4.7
Cobalt	5.2 B	1.3 B	5.9 B	2.8 B	7.2 B	2.3 B
Copper	1870	7	176	56.9	1610	53.9
Iron	21500	1870	8110	4300	15100	4030
Lead	4540	11.2	77.6	214	2610	1340
Magnesium	5360	1010 B	3770	2160	4190	1610
Manganese	413	31.5	101	91.5	333	117
Mercury	0.35	0.06 U	0.06 U	0.06 U	0.15	0.06 U
Nickel	12.2	2 B	9.3	3.6 B	8.4 B	3.5 B
Potassium	2040	424 B	1580	630 B	1710	342 B
Selenium	2	2	0.99 U	0.98 U	1 U	0.99 U
Silver	11.2	0.16 U	0.38 B	0.49 B	5.8	2.2 B
Sodium	211 B	107 B	219 B	173 B	223 B	167 B
Thallium	1.4 U	1.2 U	1.3 U	1.3 U	3.2	1.3 U
Vanadium	21.3	4.7 B	16.7	6.7 B	18.9	14.7
Zinc	4230	19.6	92.4	346	3390	104

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Inorganic Sample Results - Subsurface Soil	MS016 01MS-MS016-SB-0708-N 6/1/01 - 1428	RS021 01MS-RS021-SB-0304-N 5/31/01 - 0905	RS024 01MS-RS024-SB-0709-N 5/31/01 - 1140	RS029 01MS-RS029-SB-0304-N 5/31/01 - 1438	RS029 01MS-RS029-SB-0708-N 5/31/01 - 1444	RS033 01MS-RS033-SB-0304-N 5/31/01 - 1406
Analyte	***Concentration (mg/kg)***					
Aluminum	2650	5360	1490	8250	8270	27500
Antimony	20.9	1.4 B	1.1 U	7.4 B	22.7	3.7 B
Arsenic	144	151	2.9	87	425	307
Barium	746	100	26 B	308	434	216
Beryllium	0.07 B	0.3 B	0.02 U	0.02 U	0.24 B	0.53 B
Cadmium	0.09 U	1.8	0.09 U	7.1	38.3	1.8 B
Calcium	13900	35400	2780	35500	23700	59200
Chromium	10.5	10.2	5.5	22	24.2	37.6
Cobalt	5.2 B	8 B	1.7 B	8.5 B	7.8 B	16.2 B
Copper	515	94.8	8.6	248	1850	420
Iron	28800	8860	2950	22900	42100	33700
Lead	2760	80.7	9.1	1100	3970	214
Magnesium	2850	5240	1330	7840	6070	16700
Manganese	327	343	33.1	379	426	400
Mercury	0.07 B	0.05 U	0.06 U	0.57	0.93	0.11 B
Nickel	6.5 B	10	2.1 B	18.4	13.7	34.5
Potassium	751 B	1990	465 B	3910	2120	9340
Selenium	0.96 U	0.93 U	1.1	1.6	5.1	1.6 U
Silver	6.7	0.6 B	0.15 U	4	14.6	1.6 B
Sodium	352 B	274 B	107 B	1250	536 B	1570 B
Thallium	1.2 U	1.2 U	1.2 U	1.3 U	1.5 U	2 U
Vanadium	15.4	15.9	7.7 B	23.3	24.1	49.7
Zinc	900	267	16.5	1020	3840	386

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Volatile Organic Compound (VOC) Sample Results - Subsurface Soil	MS006 01MS-MS006-SB-0304-N 5/31/01 - 0848	MS007 01MS-MS007-SB-0405-N 6/2/01 - 1512	MS008 01MS-MS008-SB-0608-N 5/31/01 - 1040	MS014 01MS-MS014-SB-0708-N 6/2/01 - 1358	MS015 01MS-MS015-SB-0304-N 6/1/01 - 1505	MS015 01MS-MS015-SB-0708-N 6/1/01 - 1507
Analyte	***Concentration (mg/kg)***					
1,1,1-Trichloroethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,1,2,2-Tetrachloroethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,1,2-Trichloroethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,1-Dichloroethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,1-Dichloroethene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,2,4-Trichlorobenzene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,2-Dibromo-3-chloropropane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,2-Dibromoethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,2-Dichlorobenzene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,2-Dichloroethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,2-Dichloropropane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,3-Dichlorobenzene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
1,4-Dichlorobenzene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
2-Butanone	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
2-Hexanone	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
4-Methyl-2-pentanone	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Acetone	0.014 U	0.012 J	0.011 U	0.011 J	0.012 JB	0.012 U
Benzene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Bromodichloromethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Bromoform	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Bromomethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Carbon Disulfide	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Carbon Tetrachloride	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Chlorobenzene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Chloroethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.013 B
Chloroform	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Chloromethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
cis-1,2-Dichloroethene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.03 B
cis-1,3-Dichloropropene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Cyclohexane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Dibromochloromethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Dichlorodifluoromethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Ethylbenzene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Isopropylbenzene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Methyl Acetate	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Methyl tert-Butyl Ether	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Methylcyclohexane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Methylene Chloride	0.025 B	0.047 B	0.015 B	0.047 B	0.028 B	0.012 U
Styrene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Tetrachloroethene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Toluene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
trans-1,2-Dichloroethene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
trans-1,3-Dichloropropene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Trichloroethene	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Trichlorofluoromethane	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Vinyl Chloride	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Xylenes (total)	0.014 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Volatile Organic Compound (VOC) Sample Results - Subsurface Soil	MS016 01MS-MS016-SB-0708-N 6/1/01 - 1428	RS021 01MS-RS021-SB-0304-N 5/31/01 - 0905	RS024 01MS-RS024-SB-0709-N 5/31/01 - 1140	RS029 01MS-RS029-SB-0304-N 5/31/01 - 1438	Rs029 01MS-RS029-SB-0708-N 5/31/01 - 1444	RS033 01MS-RS033-SB-0304-N 5/31/01 - 1406
Analyte	***Concentration (mg/kg)***					
1,1,1-Trichloroethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,1,2,2-Tetrachloroethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,1,2-Trichloroethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,1-Dichloroethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,1-Dichloroethene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.004 J
1,2,4-Trichlorobenzene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,2-Dibromo-3-chloropropane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,2-Dibromoethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,2-Dichlorobenzene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,2-Dichloroethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,2-Dichloropropane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,3-Dichlorobenzene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
1,4-Dichlorobenzene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
2-Butanone	0.01 U	0.012 U	0.011 U	0.041	0.011 U	0.019 U
2-Hexanone	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
4-Methyl-2-pentanone	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Acetone	0.012 B	0.012 U	0.011 J	0.22	0.041	0.019 U
Benzene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Bromodichloromethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Bromoform	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Bromomethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Carbon Disulfide	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Carbon Tetrachloride	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Chlorobenzene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Chloroethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Chloroform	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Chloromethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
cis-1,2-Dichloroethene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
cis-1,3-Dichloropropene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Cyclohexane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Dibromochloromethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Dichlorodifluoromethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Ethylbenzene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Isopropylbenzene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Methyl Acetate	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Methyl tert-Butyl Ether	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Methylcyclohexane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Methylene Chloride	0.04 B	0.019 B	0.018 B	0.013 B	0.02 B	0.021 B
Styrene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Tetrachloroethene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Toluene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
trans-1,2-Dichloroethene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
trans-1,3-Dichloropropene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Trichloroethene	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Trichlorofluoromethane	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Vinyl Chloride	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U
Xylenes (total)	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.019 U

U - Analyzed for, but not detected. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
E - Estimated. Result above calibration limits. Dilution was requred.

Semi Volatile Organic Compound (SVOC) Sample Results - Subsurface Soil	MS006 01MS-MS006-SB-0304-N 5/31/01 - 0848 DF=1	MS007 01MS-MS007-SB-0405-N 6/2/01 - 1512 DF=1	MS008 01MS-MS008-SB-0608-N 5/31/01 - 1040 DF=1	MS014 01MS-MS014-SB-0708-N 6/2/01 - 1358 DF=1	MS015 01MS-MS015-SB-0304-N 6/1/01 - 1505 DF=1	MS015 01MS-MS015-SB-0708-N 6/1/01 - 1507 DF=1
Analyte	***Concentration (mg/kg)***					
1,1'-Biphenyl	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2,2'-oxybis(1-Chloropropane)	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2,4,5-Trichlorophenol	1.1 U	0.93 U	0.98 U	0.9 U	1 U	0.89 U
2,4,6-Trichlorophenol	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2,4-Dichlorophenol	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2,4-Dimethylphenol	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2,4-Dinitrophenol	1.1 U	0.93 U	0.98 U	0.9 U	1 U	0.89 U
2,4-Dinitrotoluene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2,6-Dinitrotoluene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2-Chloronaphthalene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2-Chlorophenol	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2-Methylnaphthalene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2-Methylphenol	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
2-Nitroaniline	1.1 U	0.93 U	0.98 U	0.9 U	1 U	0.89 U
2-Nitrophenol	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
3,3'-Dichlorobenzidine	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
3-Nitroaniline	1.1 U	0.93 U	0.98 U	0.9 U	1 U	0.89 U
4,6-Dinitro-2-methylphenol	1.1 U	0.93 U	0.98 U	0.9 U	1 U	0.89 U
4-Bromophenyl-phenylether	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
4-Chloro-3-methylphenol	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
4-Chloroaniline	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
4-Chlorophenyl-phenyl ether	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
4-Methylphenol	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
4-Nitroaniline	1.1 U	0.93 U	0.98 U	0.9 U	1 U	0.89 U
4-Nitrophenol	1.1 U	0.93 U	0.98 U	0.9 U	1 U	0.89 U
Acenaphthene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Acenaphthylene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Acetophenone	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Anthracene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Atrazine	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Benzaldehyde	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Benzo(a)anthracene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Benzo(a)pyrene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Benzo(b)fluoranthene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Benzo(g,h,i)perylene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Benzo(k)fluoranthene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
bis(2-Chloroethoxy)methane	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
bis-(2-Chloroethyl) ether	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
bis(2-Ethylhexyl)phthalate	0.43 JB	0.16 J	0.062 J	0.069 J	0.41 U	0.36 U
Butylbenzylphthalate	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Caprolactam	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Carbazole	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Chrysene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Dibenzo(a,h)anthracene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Dibenzofuran	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Diethylphthalate	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Dimethylphthalate	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Di-n-butylphthalate	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Di-n-octylphthalate	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Semi Volatile Organic Compound (SVOC) Sample Results - Subsurface Soil	MS006 01MS-MS006-SB-0304-N 5/31/01 - 0848 DF=1	MS007 01MS-MS007-SB-0405-N 6/2/01 - 1512 DF=1	MS008 01MS-MS008-SB-0608-N 5/31/01 - 1040 DF=1	MS014 01MS-MS014-SB-0708-N 6/2/01 - 1358 DF=1	MS015 01MS-MS015-SB-0304-N 6/1/01 - 1505 DF=1	MS015 01MS-MS015-SB-0708-N 6/1/01 - 1507 DF=1
Analyte	***Concentration (mg/kg)***					
Fluoranthene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Fluorene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Hexachlorobenzene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Hexachlorobutadiene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Hexachlorocyclopentadiene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Hexachloroethane	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Indeno(1,2,3-cd)pyrene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Isophorone	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Naphthalene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Nitrobenzene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
N-Nitroso-di-n-propylamine	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
N-Nitrosodiphenylamine	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Pentachlorophenol	1.1 U	0.93 U	0.98 U	0.9 U	1 U	0.89 U
Phenanthrene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Phenol	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U
Pyrene	0.43 U	0.37 U	0.39 U	0.36 U	0.41 U	0.36 U

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Semi Volatile Organic Compound (SVOC) Sample Results - Subsurface Soil	MS016 01MS-MS016-SB-0708-N 6/1/01 - 1428 DF=1	RS021 01MS-RS021-SB-0304-N 5/31/01 - 0905 DF=1	RS024 01MS-RS024-SB-0709-N 5/31/01 - 1140 DF=1	RS029 01MS-RS029-SB-0304-N 5/31/01 - 1438 DF=5	RS029 01MS-RS029-SB-0708-N 5/31/01 - 1444 DF=1	RS033 01MS-RS033-SB-0304-N 5/31/01 - 1406 DF=1
Analyte	***Concentration (mg/kg)***					
1,1'-Biphenyl	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2,2'-oxybis(1-Chloropropane)	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2,4,5-Trichlorophenol	0.9 U	0.92 U	0.9 U	4.5 U	0.92 U	1.1 U
2,4,6-Trichlorophenol	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2,4-Dichlorophenol	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2,4-Dimethylphenol	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2,4-Dinitrophenol	0.9 U	0.92 U	0.9 U	4.5 U	0.92 U	1.1 U
2,4-Dinitrotoluene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2,6-Dinitrotoluene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2-Chloronaphthalene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2-Chlorophenol	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2-Methylnaphthalene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2-Methylphenol	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
2-Nitroaniline	0.9 U	0.92 U	0.9 U	4.5 U	0.92 U	1.1 U
2-Nitrophenol	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
3,3'-Dichlorobenzidine	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
3-Nitroaniline	0.9 U	0.92 U	0.9 U	4.5 U	0.92 U	1.1 U
4,6-Dinitro-2-methylphenol	0.9 U	0.92 U	0.9 U	4.5 U	0.92 U	1.1 U
4-Bromophenyl-phenylether	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
4-Chloro-3-methylphenol	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
4-Chloroaniline	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
4-Chlorophenyl-phenyl ether	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
4-Methylphenol	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
4-Nitroaniline	0.9 U	0.92 U	0.9 U	4.5 U	0.92 U	1.1 U
4-Nitrophenol	0.9 U	0.92 U	0.9 U	4.5 U	0.92 U	1.1 U
Acenaphthene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Acenaphthylene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Acetophenone	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Anthracene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Atrazine	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Benzaldehyde	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Benzo(a)anthracene	0.36 U	0.37 U	0.36 U	0.49 J	0.37 U	0.44 U
Benzo(a)pyrene	0.36 U	0.37 U	0.36 U	0.41 J	0.37 U	0.44 U
Benzo(b)fluoranthene	0.36 U	0.37 U	0.36 U	0.38 J	0.37 U	0.44 U
Benzo(g,h,i)perylene	0.36 U	0.37 U	0.36 U	0.23 J	0.37 U	0.44 U
Benzo(k)fluoranthene	0.36 U	0.37 U	0.36 U	0.32 J	0.37 U	0.44 U
bis(2-Chloroethoxy)methane	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
bis-(2-Chloroethyl) ether	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
bis(2-Ethylhexyl)phthalate	0.36 JB	0.37 JB	0.36 JB	0.22 J	0.077 J	0.089 J
Butylbenzylphthalate	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Caprolactam	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Carbazole	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Chrysene	0.36 U	0.37 U	0.36 U	0.68 J	0.37 U	0.44 U
Dibenzo(a,h)anthracene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Dibenzofuran	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Diethylphthalate	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Dimethylphthalate	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Di-n-butylphthalate	0.36 U	0.37 U	0.31 J	1.8 U	0.37 U	0.44 U
Di-n-octylphthalate	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Semi Volatile Organic Compound (SVOC) Sample Results - Subsurface Soil	MS016 01MS-MS016-SB-0708-N 6/1/01 - 1428 DF=1	RS021 01MS-RS021-SB-0304-N 5/31/01 - 0905 DF=1	RS024 01MS-RS024-SB-0709-N 5/31/01 - 1140 DF=1	RS029 01MS-RS029-SB-0304-N 5/31/01 - 1438 DF=5	RS029 01MS-RS029-SB-0708-N 5/31/01 - 1444 DF=1	RS033 01MS-RS033-SB-0304-N 5/31/01 - 1406 DF=1
Analyte	***Concentration (mg/kg)***					
Fluoranthene	0.36 U	0.37 U	0.36 U	0.86 J	0.37 U	0.44 U
Fluorene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Hexachlorobenzene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Hexachlorobutadiene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Hexachlorocyclopentadiene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Hexachloroethane	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Indeno(1,2,3-cd)pyrene	0.36 U	0.37 U	0.36 U	0.24 J	0.37 U	0.44 U
Isophorone	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Naphthalene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Nitrobenzene	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
N-Nitroso-di-n-propylamine	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
N-Nitrosodiphenylamine	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Pentachlorophenol	0.9 U	0.92 U	0.9 U	4.5 U	0.92 U	1.1 U
Phenanthrene	0.36 U	0.37 U	0.36 U	0.53 J	0.37 U	0.44 U
Phenol	0.36 U	0.37 U	0.36 U	1.8 U	0.37 U	0.44 U
Pyrene	0.36 U	0.37 U	0.36 U	0.96 J	0.05 J	0.44 U

U - Analyzed for, but not det. The assoc. num. value is the sample reporting limit.
J - The assoc. num. value is an est. quantity.
B - Greater than method det. limit, less than contract req. quant. limit.

Attachment 4
Site Inspection Form

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Midvale Slag Superfund Site	**Date of inspection:** August 6, 2003
Location and Region: Midvale, UT/EPA Region VIII	**EPA ID:** UTD081834277
Agency, office, or company leading the five-year review: EPA Region VIII	**Weather/temperature:** Partly cloudy/low 90s

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ■ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- ■ Other Excavation of contaminated soils; groundwater monitoring

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☐ O&M manual — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ As-built drawings — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Maintenance logs — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks

2. **Site-Specific Health and Safety Plan** — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks

3. **O&M and OSHA Training Records** — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Other permits _____ — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks

7. **Groundwater Monitoring Records** — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks Groundwater monitoring records are maintained off-site by EPA and CDM in their respective offices.

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ■ N/A

    Remarks

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ■ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A

Remarks Fencing removed for areas of 7200 South extension

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks No trespassing signs are placed on fence and along 7200 South extension

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ■ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ■ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____

Frequency _____

Responsible party/agency _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ■ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ■ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ■ No ☐ N/A

Violations have been reported ☐ Yes ☐ No ☐ N/A

Other problems or suggestions: ☐ **Report attached**

No deed restrictions in place at this time since the site is undeveloped. The City of Midvale has included OU1 in its Bingham Junction Zone, which will control development based on environmental concerns. However, for the institutional controls to become valid, an IC plan needs to be agreed to and adopted by EPA, UDEQ, and the City of Midvale.

2. **Adequacy** ☐ ICs are adequate ■ ICs are inadequate ☐ N/A

Remarks An IC plan needs to be agreed to and adopted before the ICs will be adequate to control development.

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☐ No vandalism evident

Remarks None evident, although trespassing is allowed due to removal of the fence to accommodate the construction of 7200 South extension.

2. **Land use changes on site** ☐ N/A

Remarks 7200 South extension has been constructed through the site.

3. **Land use changes off site** ■ N/A

Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ■ N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A

Remarks _____

B. Other Site Conditions

Remarks The site appears to be as it was at the time of issuance of the ROD with the exception of the completion of the RA and the construction of the 7200 South extension.

VII. LANDFILL COVERS ☐ Applicable ■ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks_____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
- ☐ **Wet areas** ☐ **Location shown on site map** Areal extent_____
- ☐ Ponding ☐ Location shown on site map Areal extent_____
- ☐ Seeps ☐ Location shown on site map Areal extent_____
- ☐ Soft subgrade ☐ Location shown on site map Areal extent_____

Remarks_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability
Areal extent_____
Remarks_____

B. Benches ☐ Applicable ☐ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

C. Letdown Channels ☐ Applicable ☐ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☐ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ■ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ■ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

C. Treatment System ☐ Applicable ☐ N/A

1. **Treatment Train (Check components that apply)**
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____

D. Monitoring Data

1. Monitoring Data
   ☐ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells (natural attenuation remedy)**
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The remedy included the excavation of contaminated soils from WENW and WESE and transportation of the soils to Sharon Steel OU1 and Midvale Slag OU2, respectively; deed restrictions or other institutional controls to prevent residential development on the remaining areas of the OU1 site; and groundwater monitoring.

Nothing is evident from the site inspection concerning the current condition of the site to indicate that the remedy is not currently functioning as designed.

The fence around the site has been removed from where it crosses the 7200 South extension.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

There are no components of the remedy at the site such as a groundwater treatment system that require O&M, therefore there was not anything to inspect as part of the site inspection. The OU 1 ROD does require semi-annual monitoring of groundwater, but that will be reviewed as part of the data review conducted in the office.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Attachment 5
Photographic Record

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 1
Photographer: G. McKenzie
Date: 08/06/03
Direction: E
Description: 7200 South Street extension across site from west end.

Roll No.: 1
Photo No.: 2
Photographer: G. McKenzie
Date: 08/06/03
Direction: SE
Description: Concrete rubble south of 7200 South Street extension, east of Jordan River.

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 3
Photographer: G. McKenzie
Date: 08/06/03
Direction: E
Description: Abandoned Wastewater Treatment Plant.

Roll No.: 1
Photo No.: 4
Photographer: G. McKenzie
Date: 08/06/03
Direction: N
Description: Debris north of 7200 South Street extension, east of Jordan River.

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 5
Photographer: G. McKenzie
Date: 08/06/03
Direction: NE
Description: West side central OU1 (north of 7200 South Street extension).

Roll No.: 1
Photo No.: 6
Photographer: G. McKenzie
Date: 08/06/03
Direction: N
Description: Central portion of central OU1 (north of 7200 South Street extension).

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 7
Photographer: G. McKenzie
Date: 08/06/03
Direction: N
Description: Berm along Jordan River, central OU1.

Roll No.: 1
Photo No.: 8
Photographer: G. McKenzie
Date: 08/06/03
Direction: N
Description: Berm continues along river by Winchester Estates Northwest (WENW) residential area.

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 9
Photographer: G. McKenzie
Date: 08/06/03
Direction: SE
Description: Central OU1 from near Jordan River and WENW residential area.

Roll No.: 1
Photo No.: 10
Photographer: G. McKenzie
Date: 08/06/03
Direction: S
Description: Haul road through central OU1 from north.

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 11
Photographer: G. McKenzie
Date: 08/06/03
Direction: N
Description: Fill and debris in north central OU1 (WENW in background).

Roll No.: 1
Photo No.: 12
Photographer: G. McKenzie
Date: 08/06/03
Direction: E
Description: Berm along north end of central OU1.

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 13
Photographer: G. McKenzie
Date: 08/06/03
Direction: E
Description: WESE from gravel road looking east.

Roll No.: 1
Photo No.: 14
Photographer: G. McKenzie
Date: 08/06/03
Direction: N
Description: Pump station Number 7 (on WESE).

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 15
Photographer: G. McKenzie
Date: 08/06/03
Direction: SE
Description: East central OU1 from North.

Roll No.: 1
Photo No.: 16
Photographer: G. McKenzie
Date: 08/06/03
Direction: E
Description: East central OU1 looking east.

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 17
Photographer: G. McKenzie
Date: 08/06/03
Direction: E
Description: Gravel road and debris.

Roll No.: 1
Photo No.: 18
Photographer: G. McKenzie
Date: 08/06/03
Direction: NE
Description: Air monitoring station for the Utah Division of Air Quality Air Monitoring Center (801-887-0760).

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 19
Photographer: G. McKenzie
Date: 08/06/03
Direction: SE
Description: Embankment (8 to 10 feet deep) along haul road, east central part of OU1.

Roll No.: 1
Photo No.: 20
Photographer: G. McKenzie
Date: 08/06/03
Direction: S
Description: Haul route south of 7200 South Street extension, running into OU2.

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 22
Photographer: G. McKenzie
Date: 08/06/03
Direction: SW
Description: Abandoned wastewater treatment plant from 7200 South Street extension.

Roll No.: 1
Photo No.: 23
Photographer: G. McKenzie
Date: 08/06/03
Direction: S
Description: Winchester Estates southeast (WESE) from Winchester Street.

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 24
Photographer: G. McKenzie
Date: 08/06/03
Direction: S
Description: Berm along west side of WENW from 6460 South.

Roll No.: 1
Photo No.: 25
Photographer: G. McKenzie
Date: 08/06/03
Direction: E
Description: Fenceline along 6500 South.

Photographic Record

Site Name: Midvale Slag OU1 Site
Site Location: Midvale, Utah
Project Ref. No.: 3282-142

Roll No.: 1
Photo No.: 26
Photographer: G. McKenzie
Date: 08/06/03
Direction: S
Description: Typical street in Parcel WENW (1090 West).

Roll No.: 1
Photo No.: 27
Photographer: G. McKenzie
Date: 08/06/03
Direction: W
Description: Piles of fill along 700 West Street.

Attachment 6
Interview Records

CONTACT: David May, President
Citizens for a Safe Future for Midvale
(Technical Assistance Grant Recipient)

DATE: August 11, 2003

What do you know about the Midvale Slag Site and the cleanups that have occurred?

Mr. May has been involved with Citizens for a Safe Future for Midvale (the TAG group) for four y ears. He recalls a lot of initial controversy and the desire that most, if not all of the contamination be hauled away. He also feels that when one problem has been addressed, something new "pops up."

Were you in the area during the cleanup?

Mr. May has lived in Midvale for eleven years.

Was your property among those cleaned up?

N/A

Do you have any <u>personal</u> concerns about what was done? Are you aware of any <u>community</u> concerns?

Mr. May wants to make sure the Agencies have "appropriate clean up levels" for planned uses at Midvale Slag. He shares a common desire to see the minimization of "cover" at the Site (in other words, he does not want a cap like at Sharon Steel) to accommodate future redevelopment. He is not aware of much community interest or concern. He believes that all the delays at Midvale Slag are costing money that could better be spent putting the Site back into productive use.

Have you noticed anything going on in the area that you think might have damaged or compromised the remedy?

None noted.

Do you have any additional comments, questions or suggestion regarding the clean up?

When is it going to start? When will we see some activity? Mr. May is very appreciative of the inclusiveness and information sharing that has marked Site work in the recent past. He stated that he feels it keeps the community's level of "suspicion" down.

Interviewed by:

Nancy Mueller, EPA

CONTACT: Kevin Murray,
LeBoeuf, Lamb, Greene & MacRae, L.L.P
(Attorney for Littleson, Inc., owner of
the majority of the Site)

Date: August 12, 2003

What do you know about the Midvale Slag clean up?

Mr. Murray's firm was not involved in the early activity on the Site (they became involved after the majority of work on OU-1 occurred). However, he is familiar with the entire history of the Site.

Were you in the area during the cleanup?

Mr. Murray began working for Littleson, Inc., in 1997.

Do you have any <u>personal</u> concerns about what was done? Are you aware of any <u>community</u> concerns?

Mr. Murray indicated that, at the moment, he has no concerns. However, he believes that early on the regulatory agencies were not treating a "truly innocent" landowner, who did nothing to contaminate the property, fairly; that attitude has changed. He shares the same concern as many others: Things are taking too long; procedural issues often bog things down. He indicated that maintaining the current schedule is crucial; two real estate opportunities have been lost already; revenue losses continue until actual clean up begins.

Have you noticed anything going on in the area that you think might have damaged or compromised the remedy?

Mr. Murray stated that he thinks everything done to date has been done right, and everything is still fine.

Do you have any additional comments, questions or suggestions regarding the clean up?

Mr. Murray's big concern is with land use. There may be some development challenges on OU1 because of it being in the flood plain of the Jordan River. There are also some drainage and engineering concerns that will need to be carefully examined. He believes that the future presents a true "silver lining," because the Site will be redeveloped and usable, unlike the adjacent Sharon Steel Site.

Mr. Murray was asked for, and granted, permission for EPA and UDEQ to talk to Bob Soehnlen of Littleson, Inc., the owner of the property.

Interviewed by:

Dave Allison, UDEQ
Nancy Mueller, EPA

CONTACT: Dennis Hamblin, Murray City Director of Community Development ***Date:*** August 12, 2003

What do you know about the Midvale Slag Site and the cleanups that have occurred?

Mr. Hamblin is quite familiar with the Superfund process since he dealt with it regarding the Murray Smelter Superfund Site. He has met with Midvale City officials and their consultants as overall planning for future use of the Site has been occurring.

Were you in the area during the cleanup?

Mr. Hamblin has worked for Murray City in his capacity as Director of Community Development for "a long time" and has observed the activity at Midvale Slag.

Was your property among those cleaned up?

N/A

Do you have any <u>personal</u> concerns about what was done? Are you aware of any <u>community</u> concerns?

Mr. Hamblin does not have any personal issues. He believes the area was cleaned up to the appropriate residential use levels. As for Murray City, Mr. Hamblin is "watching" the culinary well (400-600' deep) north of the slag piles to make sure the water does not become contaminated. Mr. Hamblin said residents of Winchester Estates may have some concerns, but his office has not received any phone calls.

Have you noticed anything going on in the area that you think might have damaged or compromised the remedy?

No water, sewer or private utility work has occurred in Winchester Estates which may have disturbed the remedy or presented health issues. No new construction is scheduled within the year in the vicinity of the cleaned up area. Mr. Hamblin assumes Midvale City takes care of any construction issues on their portion of the Site.

Do you have any additional comments, questions or suggestions regarding the clean up?

Mr. Hamblin indicated that Murray City is "linked" to Midvale in terms of community development, and both are waiting for market conditions to break. He expects Murray and Midvale will continue to cooperate as they have, and will just "bide their time." Mr. Hamblin indicated that he believes both cities' interest is the same: putting the area to productive use in order to produce revenue.

Mr. Hamblin suggested speaking with Danny Astill (801-270-2443) regarding drinking water or public works. Mr. Astill was "out in the field" observing new well development during the time frame of the interviews, so was not contacted.

Interviewed by:
Dave Allison, UDEQ, Nancy Mueller, EPA

Contact Mayor Jo Ann Seghini
Lee King, City Manager
Midvale City, UT

Date: August 14, 2003

What do you know about the Midvale Slag Site and the cleanups that have occurred?

Mayor Seghini and Mr. King have been heavily involved with every aspect of the Midvale Slag Site. Both said they feel they know "everything" about the clean ups, the weakness of the Superfund process, the relationship issues that have slowed things down in the past and current redevelopment plans for the Site.

Were you in the area during the cleanup?

Mayor Seghini has lived in Midvale for sixty-five years. She was a member of the City Council at the beginning of the investigations, and has stayed involved. Mr. King has worked for Midvale City for about 6 years.

Was your property among those cleaned up?

266 acres within Midvale City were cleaned up in the OU1 work; the city has a strong current interest in the remaining 180 acres in OU2.

Do you have any <u>personal</u> concerns about what was done? Are you aware of any <u>community</u> concerns?

Both the Mayor and Mr. King are deeply concerned with the amount of time that has transpired since the Site was first "noticed." Numerous staff changes at UDEQ and EPA have caused a lot of re-education to be necessary. They are also frustrated with the fact that, at times, it appeared that UDEQ and EPA were operating under different assumptions and applying inconsistent rules to the Site. Both indicated that the City has suffered economically and psychologically from the Superfund site stigma and there has been too much negativity. Mr. King stated that he believes there are still some community health concerns, but that the implementation of the OU2 remedy should take care of those. The Mayor concurred with that statement. Mayor Seghini indicated that the portion of Midvale west of I-15 (adjacent to the Site) is perceived by some as "the ghetto," and this greatly disturbs her.

As for the community, Mr. King said the constant delays have inhibited the city's ability to expand revenue and provide services to the community. He mentioned the "devastating" negative economic impact the Site has had on the City. Mr. King indicated the City can't take advantage of the assets inherent at the Site because of the slow pace of the Superfund process. Both the Mayor and Mr. King believe the Superfund process in general inhibits redevelopment opportunities. The Mayor indicated that it takes more than a handshake to assure a developer that the regulatory agencies will not "come back after" him at some time in the future. (She would like to know what's happened to Prospective Purchaser Agreements. Has EPA's policy in that regard changed?)

Have you noticed anything going on in the area that you think might have damaged or compromised the remedy?

Mr. King indicated that Institutional Controls don't always work. Salt Lake County and UDOT have been observed digging along West Jordan Blvd. without first contacting the City. There are occasional trespassers ("hobo camps") along the east bank of the Jordan River.

Do you have any additional comments, questions or suggestions regarding the clean up?

Mayor Seghini attributed some of the delay to the fact that she felt EPA and UDEQ each had a different "set of rules" for the clean up. She feels the State's position is that EPA's standards are not good enough. A clear definition of roles and rules, as well as remediation goals, would save a lot of grief and give some closure to the process. Both the Mayor and Mr. King indicated it's time to "Just do it!"

Interviewed by:

Dave Allison, UDEQ
Nancy Mueller, EPA

CONTACT: Rick Battison
Citizens for a Safe Future for Midvale

Date: August 13, 2003

What do you know about the Midvale Slag Site and the cleanups that have occurred?

During the early years of Site activity, Mr. Battison only knew what he read in the paper. The area of Midvale where he lives was recently annexed into the City. Mr. Battison is a member of the Planning and Zoning Commission for Midvale, so has gained knowledge of the Site there, as well as with the TAG group.

Were you in the area during the cleanup?

Yes, but Mr. Battison indicated he wasn't personally too interested in what was going on early in the process since he was not directly impacted. He did, however, have friends living in Winchester Estates, so he tried to learn as much as possible so he could help them stay informed.

Do you have any <u>personal</u> concerns about what was done? Are you aware of any <u>community</u> concerns?

One personal concern is the proposal from the Jordan Valley Water Conservancy District (JVWCD) to put drinking water wells on the west side of the Jordan River. Mr. Battison has heard discussions at the TAG and City meetings that indicate a drawdown effect could pull contaminants from the Midvale Slag Site into the River. Mr. Battison would like to know more about the JVWCD future plans, as well as green space plans along the Jordan River. Mr. Battison echoed others' concerns regarding timeliness of action at the Site.

Mr. Battison is unaware of any community concerns. He believes the perception of the OU-1 cleanup is good and that the cleanup went well. Communication has been good and citizens generally are not concerned, so they just don't show up to meetings any more.

Have you noticed anything going on in the area that you think might have damaged or compromised the remedy?

Mr. Battison has not personally noticed anything, nor has he heard anything in his capacity as a member of the Planning and Zoning Commission.

Do you have any additional comments, questions or suggestions regarding the clean up?

Mr. Battison indicated that maintaining open communication is a must. He appreciates EPA and UDEQ's willingness to participate in "before-the-fact" communication, and hopes that it continues. He also requested that the TAG group is aware of and involved in the Riparian Stakeholders Group to the extent possible.

Interviewed by:

Dave Allison, UDEQ
Nancy Mueller, EPA

Contact: Resident at time of clean up
Winchester Estates

Date: August 13, 2003

What do you know about the Midvale Slag Site and the cleanups that have occurred?

The residents indicated they watched EPA do the clean up work in their yard. They are not aware of much else regarding the Site aside from what they read in the paper.

Were you in the area during the cleanup?

Yes; the residents lived in Winchester Estates at the time of the OU1 clean up.

Was your property among those cleaned up?

Yes; their lot was excavated, with soil and landscaping replaced.

Do you have any <u>personal</u> concerns about what was done? Are you aware of any <u>community</u> concerns?

The residents have no health or environmental concerns; they are resigned to the fact that "what's done is done." They did have some property damage during the clean up (rain gutter – repaired incorrectly, so they fixed it themselves). They are not pleased with the quality of the replacement soil. Prior to the clean up they had no night crawlers; now they have a lot and they make the lawn lumpy. They are unaware of any community concerns.

Have you noticed anything going on in the area that you think might have damaged or compromised the remedy?

The residents do not believe that anyone would be digging down to plant flowers or vegetables deep enough to disturb the clean soil cover.

Do you have any additional comments, questions or suggestions regarding the clean up?

No

Interviewed by:

Dave Allison, UDEQ
Nancy Mueller

CONTACT: Bob Soehnlen ***DATE:*** August 13, 2003
Littleson, Inc. (owner of majority of Site)

What do you know about the Midvale Slag Site and the cleanups that have occurred?

As the primary responsible party for the Site, Mr. Soehnlen says he knows more than he wants to about the Site and the clean up.

Were you in the area during the cleanup?

Mr. Soehnlen has been involved from the beginning of the investigations in 1985 and throughout all of the assessments, remedial investigations and cleanup activities.

Was your property among those cleaned up?

Yes; there were eleven or twelve residential lots in Winchester Estates, as well as some open area in OU1 that were cleaned up.

Do you have any <u>personal</u> concerns about what was done? Are you aware of any <u>community</u> concerns?

Mr. Soehnlen said his personal concerns do not directly speak to the cleanup itself, but to the Superfund process. There are remedy annoyances, such has having to accept contaminated materials from property he does not own (from the Butterfield Lumber Removal Action). He feels he should have been compensated for accepting that material.

The entire Superfund process and the financial commitment make Mr. Soehnlen very nervous. OU-2 has dragged on way too long. It takes much too long dealing with so many parties, scheduling meetings, reviewing multiple documents – the process is too cumbersome. Mr. Soehnlen mentioned that he has had to deal with four EPA Remedial Project Managers, and has to "start over" with each one. Mr. Soehnlen indicated that if he knew in 1960 what he knows today he would have done things differently, or even walked away, given the mental and physical stress, severe losses and the lengthy cleanup time track.

The only community concern Mr. Soehnlen is aware of is one of TIMELINESS.

Have you noticed anything going on in the area that you think might have damaged or compromised the remedy?

Mr. Soehnlen could not think of any. He indicated that OU-1 was cleaned to Murray residential standards, and that no construction has taken place, which may have disturbed the remedy over the past five years.

Do you have any additional comments, questions or suggestions regarding the clean up?

Mr. Soehnlen hopes EPA can arrive at a settlement soon. Everything is ready. The scope of the remedy is doable; all that needs occur is to resolve engineering details and legal issues. It is time to get something done. Mr. Soehnlen is very pleased with the current relationship with federal, state and city officials. All

effort must be made to stay on the current time track. He is very encouraged with the current openness, which has allowed things to proceed in a less hostile manner than in the past.

Mr. Soehnlen was asked, and granted permission, for, an interview with his employee JoAnn Vaughn, Manager of Winchester Estates.

Interviewed by:

Dave Allison, UDEQ
Nancy Mueller, EPA

CONTACT: JoAnn Vaughn, Manager
Winchester Estates Mobile Home Park

DATE: August 14, 2003
(telephone)

What do you know about the Midvale Slag Site and the cleanups that have occurred?

Ms. Vaughn indicated she was not the manager during the cleanup but is aware of the activities that took place. Soil was excavated along one street of the Park, and two other isolated lots elsewhere in the park.

Were you in the area during the cleanup?

No.

Was your property among those cleaned up?

No.

Do you have any <u>personal</u> concerns about what was done? Are you aware of any <u>community</u> concerns?

Ms. Vaughn indicated she has no personal concerns, nor has she heard of any issues regarding the clean up from any of the tenants.

Have you noticed anything going on in the area that you think might have damaged or compromised the remedy?

Ms. Vaughn said no utility work or construction has occurred since she began managing Winchester Estates. Residents are allowed to have gardens, but she does not think damage to the cap would be possible. There are no foundations to disturb and the mobile homes and structures are easily slid into and out of place during moving.

Do you have any additional comments, questions or suggestions regarding the clean up?

Ms. Vaughn said that the property owner, Bob Soehnlen, has been good at communicating with the park residents.

Interviewed by:

Dave Allison, UDEQ